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July, 15, 1906

The University of Minnesota
The College of Agriculture
1905-1906



Announcement, 1906-1907

BULLETIN

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The University Catalogues are published by authority of the Board of Regents, as a regular series of bulletins. The number issued each year varies from ten to twelve. Bulletins will be sent gratuitously, postage paid, to all persons who apply for them. In calling for bulletins, please state department of the University concerning which you desire information. The full catalogue will be sent only upon receipt of ten cents to pay postage. Address,

THE REGISTRAR,

The University of Minnesota,

Minneapolis, Minnesota.

The University

The University of Minnesota comprises the following named colleges, schools, and departments.

THE GRADUATE SCHOOL

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS

THE COLLEGE OF ENGINEERING AND MECHANICAL ARTS

THE SCHOOL OF MINES

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY

THE COLLEGE OF EDUCATION

THE UNIVERSITY SUMMER SCHOOL

THE DEPARTMENT OF AGRICULTURE

The College of Agriculture

The School of Agriculture

Short Course for Farmers

The Dairy School

The Crookston School of Agriculture

The Experiment Stations:

The Main Station at St. Anthony Park

The Sub-Station at Crookston

The Sub-Station at Grand Rapids

THE COLLEGE OF LAW

THE DEPARTMENT OF MEDICINE

The College of Medicine and Surgery

The College of Homeopathic Medicine and Surgery

The College of Dentistry

The College of Pharmacy

The Six-Year Medical Course

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

In the COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, there is a four-year course of study leading to the degree, Bachelor of Arts. The work of the first year is elective within certain limitations as to the range of subjects from which the electives may be chosen. The remaining work of the course is entirely elective, with the provision that a certain number of long courses be selected. The course is so elastic that it permits the student to make the general scope of his course classic, scientific or literary, to suit his individual purpose.

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS offers courses of study, of four years each, in civil, mechanical, electrical and municipal engineering, leading to the degrees of Civil, Mechanical, Electrical and Municipal Engineer. This college offers a four-year course of study in science and technology, leading to the degree of Bachelor of Science, with an additional year leading to the engineer's degree in any one of the various lines

offered in the college. This college also offers graduate work leading to the degree Master of Science.

THE SCHOOL OF MINES offers four-year courses of study in mining and metallurgy upon completion of which the degrees, engineer of mines and metallurgical engineer, are conferred.

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY, leading to the degrees Analytical Chemist and Chemical Technologist, offers two courses of study of four years each in analytical and applied chemistry.

THE COLLEGE OF EDUCATION receives students who have completed two years of college work, and offers them a three-year course leading to the master's degree. At the end of the second year students may receive the bachelor's degree and the University teacher's certificate. Graduates of other colleges, who have pursued an equivalent course in education, may enter for the master's degree.

THE GRADUATE SCHOOL gathers into a single organization and unites for the purposes of administration all the activities of the University in all its schools and colleges in so far as they relate to advanced instruction offered for the second or higher degrees, viz.: Master of Arts and Doctor of Philosophy conferred for advanced, non-technical study; Master of Science and Doctor of Science for technical study; Master of Laws and Doctor of Civil Law for advanced legal studies. The privileges of this school are in general open to all Bachelors of Arts, of Science, pure and applied, and of Laws, from reputable colleges and universities having courses substantially equivalent to those at this university.

THE UNIVERSITY SUMMER SCHOOL is organized for a six weeks session in June and July under the direction of the State Department of Public Instruction. In the elementary section courses are given for teachers in all the common school branches and in preparation for the state teachers' certificates. In the college section courses are given for high school teachers and in preparation for the state professional certificate. Students who desire University entrance credits and credits toward the bachelor's degree may secure these by pursuing not more than two full courses at each session.

SPECIAL COURSES. In each of the Colleges, students of mature age and adequate preparation are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

EXTENSION LECTURES. Professors in the University are prepared to give a limited number of extension lectures from time to time. For subjects, speakers, terms and dates, application should be made to the Chairman of the Committee on University Extension.

THE COLLEGE OF AGRICULTURE offers a four-year course in agriculture. The degree of Bachelor of Science, in Agriculture, is conferred on completion of the course. Students in this College may specialize along the line of forestry or of home economics and secure the degree Bachelor of Science (in Forestry, or in Home Economics).

THE SCHOOL OF AGRICULTURE offers a three-years course of study and is a training school for practical farm life and in domestic economy. The College of Agriculture is open to graduates of this School who have completed the fourth year of work required for admission to the college.

The Dairy School offers practical instruction in dairying, specially de-

signed for those who are actually engaged in the manufacture of butter and cheese.

The Short Course for Farmers is designed to be of the greatest help possible to those actually engaged in farming.

The Crookston State School of Agriculture offers a course of study quite similar to that given in the School of Agriculture.

THE COLLEGE OF LAW offers a three-years course of instruction leading to the degree of Bachelor of Laws. Graduate work leading to the degrees, Master of Laws, and Doctor of Civil Laws is offered. An evening class is provided in this college.

THE COLLEGE OF MEDICINE AND SURGERY AND THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY offer four-year courses of study, of nine months each. Upon completion of either of the prescribed courses the degree, Doctor of Medicine is conferred.

In the Colleges of Science, Literature and the Arts, of Medicine and Surgery, and of Homeopathic Medicine and Surgery, there has been established a combined course of six years, leading to the degrees, Bachelor of Science, and Doctor of Medicine.

THE COLLEGE OF DENTISTRY offers a three-years course of study, of nine months each. Upon completion of the prescribed course the degree of Doctor of Dental Surgery is conferred.

THE COLLEGE OF PHARMACY offers a two- or three-years course of study leading to the degree of Pharmaceutical Chemist. This college also offers graduate work leading to the degrees, Master of Pharmacy and Doctor of Pharmacy.

Historical

AN ACT to re-organize and provide for the government and regulation of the University of Minnesota, and to establish an Agricultural College therein.

As amended by Chapter X of the General Laws of 1872:

AN ACT to amend Chapter I of the Session Laws of 1868, relating to the University of Minnesota.

Section 1. The object of the University of Minnesota, established by the Constitution at or near the Falls of St. Anthony, shall be to provide the means of acquiring a thorough knowledge of the various branches of literature, science and the arts, and such branches of learning as are related to agriculture and the mechanic arts, including military tactics and other scientific and classical studies.

Sec. 2. There shall be established in the University of Minnesota five or more colleges or departments, that is to say, a College of Science, Literature, and the Arts, a College of Agriculture, including "military tactics," a College of Mechanic Arts, a college or Department of Law, and also a College or Department of Medicine. The Department of Elementary Instruction may be dispensed with at such a rate and in such wise as may seem just and proper to the Board of Regents.

Sec. 3. The government of the University shall be vested in a board of ten Regents of which the Governor of the State, the State Superintendent of Public Instruction, and the President of the University, shall be members ex-officio and the remaining seven members thereof shall be appointed by the Governor, by and with the advice and consent of the Senate. Whenever a vacancy occurs therein, for any cause, the same shall be filled for the unexpired term in the same manner. Of the Regents thus appointed, two shall be commissioned and hold their offices for one year, and two for two years, and three for three years. Their successors shall be appointed in a like manner, and shall hold their offices for the full term of three years from the first Wednesday of March succeeding their appointment and until their successors are appointed and qualified. The President of the University shall have the same rights, powers and privileges as other members, *except the right of voting, and shall be, ex-officio, the Corresponding Secretary of the Board of Regents.

Sec. 4. The Regents of the University shall constitute a body corporate, under the name and style of "The University of Minnesota," and by that name may sue and be sued, contract and be contracted with, make and use a common seal and alter the same at pleasure; a majority of the voting members shall constitute a quorum for the transaction of business, and a less number may adjourn from time to time.

Sec. 5. The Board of Regents shall elect from the members of the

*By the later act the President has been given a vote.

Board, a President of the Board; (a) Recording Secretary and (a) Treasurer, who shall hold their respective offices during the pleasure of the Board. And the President and Treasurer each before entering upon the duties of his office, shall execute a bond in the penal sum of fifty thousand dollars, with at least two sufficient sureties, to the State of Minnesota, to be approved by the Governor, conditioned for the faithful and honest performance of the duties of his office according to law, which bonds, when so approved, shall be filed at the office of the Secretary of State.

Sec. 6. The Board of Regents shall have the power, and it shall be their duty, to enact by-laws for the government of the University of Minnesota in all its departments; to elect a President of the University, and in their discretion a Vice-President, and the requisite number of professors, instructors, officers and employes, and to fix their salaries, (and) also the term of office of each, and to determine the moral and educational qualifications of applicants for admission, and in the appointment of professors, instructors and other officers, and assistants of the University, and in prescribing the studies and exercise thereof; and in all the management and government thereof, no partiality or preference shall be shown to one sect or religious denomination over another; nor shall anything sectarian be taught therein. And the Board of Regents shall have the power to regulate the course of instruction, and (to) prescribe the books and authorities to be used, and also to confer such degrees and grant such diplomas as is usual, in their discretion. It shall be the duty of the Recording Secretary to record all the proceedings of the Board, and carefully preserve all its books and papers; and before entering upon the duties of his office he shall take and subscribe an oath to perform his duties honestly and faithfully as such officer. It shall be the duty of the Treasurer to keep an exact and faithful account of all moneys, bills receivable and evidence of indebtedness, and all securities of property received or paid out by him, and before entering upon his duties shall take and subscribe an oath that he will well and faithfully perform the duties of Treasurer thereof. It shall be the duty of the President to preside at the meetings of the Board; and, in case of his inability to preside, the Board may appoint a President pro tempore.

Sec. 7. In addition to all the rights, immunities, franchises and endowments heretofore granted or conferred upon the University of Minnesota, for the endowment, support and maintenance thereof, there shall be and is hereby inviolably appropriated and placed at the disposal of the Board of Regents thereof, to be drawn from the State treasury upon the order of the President, drawn upon the State Auditor, countersigned by the Secretary of the Board, and payable to the order of the Treasurer of the Board, all the interest and income of the fund to be derived from the sale of all lands granted and to be granted to the State of Minnesota by virtue of an act of Congress, entitled "An act donating lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July 2d, 1867, and also all such gifts, grants and contributions to the endowment thereof as may be derived from any and all such sources.

Sec. 8. And in order to effect a settlement of all remaining indebtedness of the University, all the powers and authorities given by Chapter 18 of the laws of 1864, entitled "An act relating to the University of Minnesota," and Chapter 11 of the laws of 1866, entitled "An act to amend an act

relating to the University of Minnesota, approved March 4, 1864," to the Regents therein mentioned, are hereby given to and conferred upon the Board of Regents of the University of Minnesota aforesaid, and the said acts are hereby continued and shall be in force until such outstanding indebtedness is fully liquidated.

Sec. 9. The first meeting of the first Board of Regents under the provisions of this act, shall be holden at the University building on the first Wednesday in March, 1868, at which meeting the officers of the Board shall be elected, and the annual meetings of the Board shall be holden on the second Tuesday in December in each and every year thereafter.

Sec. 10. Any person or persons contributing a sum of not less than fifteen thousand dollars shall have the privilege of endowing a professorship in the University, the name and object of which shall be designated by the Board of Regents.

Sec. 11. The said Board of Regents shall succeed to and have control of the books, records, buildings, and all other property of the University; and the present Board of Regents shall be dissolved immediately upon the organization of the Board herein provided for. Provided, that all contracts made at that time, binding upon the Board then dissolved, shall be assumed and discharged by their successors in office.

Sec. 12. It shall be the duty of the Board of Regents herein provided for, to make arrangements for securing suitable lands, pursuant to the act of Congress, above mentioned, in the vicinity of the University, for an experimental farm, and as soon thereafter as may be to make such improvements thereon as will render the same available for experimental purposes in connection with the course in the agricultural college; and for such purposes, the Board of Regents is hereby authorized to expend a sum not exceeding the amount specified by the act of Congress aforesaid.

Sec. 13. On or before the second Tuesday in December in each and every year, the Board of Regents, through their President, shall make a report to the Governor, showing in detail the progress and condition of the University during the previous University year, the wants of the institution in all its various departments—the nature, costs and results of all improvements, experiments and investigations, the number of professors and students—the amount of money received and disbursed—and such other matters, including industrial and economic statistics, as they deem important or useful. One copy of said report shall be transmitted to each of the other colleges endowed under the provisions of the said act of Congress, and one copy to the Secretary of the Interior.

Sec. 14. The President of the University shall be the President of the General Faculty, and of the special faculties of the several departments or colleges, and the executive head of the institution in all its departments. As such officer, he shall have authority, subject to the Board of Regents, to give general direction to the practical affairs and scientific investigations of the University, and in the recess of the Board of Regents to remove any employe or subordinate officer not a member of the Faculty and supply for the time being any vacancies thus created. He shall perform the customary duties of a corresponding secretary, and may be charged with the duties of one of the professorships. He shall make to the Superintendent of Public Instruction, on or before the second Tuesday in December in each and every year, a report showing in detail the progress and condition of the Uni-

versity during the previous University year—the number of professors and students in the several departments—and such other matters relating to the proper educational work of the institution as he shall deem useful. It shall be the duty of the President of the University to make to the Board of Regents, on or before the second Tuesday in December in each and every year, a report showing in detail the progress and condition of the University during the previous University year—the nature and results of all important experiments and investigations and such other matters, including economic and industrial facts and statistics, as he shall deem useful.

Sec. 15. Chapter eighty of the laws of eighteen hundred and sixty, chapter eighty-seven of the laws of eighteen hundred and sixty-two, and so much and such parts of any and all acts and laws, whether general or special, as are inconsistent with the provisions of this act, are hereby repealed.

Sec. 16. This act shall take effect and be in force from and after its passage.

Approved February 18, 1868. Act to amend approved February 29 1872.

The Board of Regents

CYRUS NORTHROP, LL. D., MINNEAPOLIS	<i>Ex-Officio</i>
The President of the University	
The HON. JAMES T. WYMAN, MINNEAPOLIS, ...	1907
The President of the Board	
The HON. JOHN A. JOHNSON, ST. PETER, ...	<i>Ex-Officio</i>
The Governor of the State	
The HON. JOHN W. OLSEN, ALBERT LEA	<i>Ex-Officio</i>
The State Superintendent of Public Instruction	
The HON. STEPHEN MAHONEY, MINNEAPOLIS	1907
The HON O. C. STRICKLER, NEW ULM	1907
The HON. S. G. COMSTOCK, MOORHEAD	1909
The HON. THOMAS WILSON, ST. PAUL	1909
The HON. B. F. NELSON, MINNEAPOLIS	1909
The HON. A. E. RICE, WILLMAR	1909
The HON. EUGENE W. RANDALL, MORRIS	1910
The HON. DANIEL R. NOYES, ST. PAUL	1910
C. D. DECKER, AUSTIN,	
Secretary of the Board	

Executive Officers

THE UNIVERSITY

CYRUS NORTHROP, LL.D., *President*

ERNEST B. PIERCE, B.A., *Registrar*

C. D. DECKER, *Purchasing Agent and Secretary of the Board of Regents*

THE COLLEGES

JOHN F. DOWNEY, M.A., C.E., *Dean of the College of Science, Literature and the Arts*

FREDERICK S. JONES, M.A., *Dean of the College of Engineering and the Mechanic Arts*

WILLIAM R. APPELBY, M.A., *Dean of the School of Mines*

GEORGE B. FRANKFORTER, Ph.D., *Dean of the School of Chemistry*

GEORGE F. JAMES, Ph.D., *Dean of the College of Education*

HENRY T. EDDY, C.E., Ph.D., LL.D. *Dean of the Graduate School*

WILLIAM M. LIGGETT, *Dean and Director of the Department of Agriculture*

WILLIAM S. PATTEE, LL.D., *Dean of the College of Law*

FRANK FAIRCHILD WESBROOK, M. A., M. D., D. C., *Dean of the College of Medicine and Surgery*

EUGENE L. MANN, B.A., M.D., *Dean of the College of Homeopathic Medicine and Surgery*

ALFRED OWRE, D.M.D., *Dean of the College of Dentistry*

FREDERICK J. WULLING, PHM.D., LL.M., *Dean of the College of Pharmacy*

LIBRARIES AND MUSEUMS

JAMES T. GEROULD, B. A., *Librarian*

LETTIE M. CRAFTS, B.L., *Assistant Librarian*

INA FIRKINS, B.L., *Library Assistant*

MARY S. MCINTYRE, B.S., *Librarian of School of Agriculture*

THOMAS G. LEE, M.D., *Librarian of Department of Medicine*

HUGH E. WILLIS, LL.M., *Librarian of the College of Law*

CHRISTOPHER W. HALL, M.A., *Curator Geological Museum*

HENRY F. NACHTRIEB, B.A., *Curator of the Zoölogical Museum*

BUILDINGS AND GROUNDS

ALLEN W. GUILD, *Superintendent of Buildings*

EDWIN A. CUZNER, *Superintendent of Grounds*

The University Council

At the regular meeting of the Board of Regents of the University May 31st, 1905, a University Council was established according to the following plan:

I. The name of the body shall be the University Council. It shall consist of the President of the University, the Deans of the various colleges and schools, one elected representative from each college or school for each four hundred students or major fraction thereof, and one representative of the general alumni association.

II. The elected members shall serve for a period of one year. They shall be chosen by the various faculties at the time of the selection of standing committees. The representative of the general alumni association shall be chosen by that body at its annual meeting from among the alumni who are not members of the University.

III. The Council shall be authorized to—

a) Appoint the following committees or the faculty representation thereon:

The University auditing committee.

The University press committee.

The committee on athletics.

The committee on University relations to other institutions of higher learning.

The committee on health and sanitation.

The committee on commencement and other University functions.

The committee on catalogue, programs and courses of study.

The committee on student entertainments and social affairs.

and such other such committees as the general University interests may require.

b) Receive reports from such committees and to make such recommendations as may be required.

c) Consider and act upon any matter of general University interest beyond the province of a single faculty which may be referred to it by the President of the University or any faculty.

IV. The Council shall hold stated meetings upon the first Monday of October, December, April and June, and such other meetings as the President of the University may call.

The representatives to the Council from the several colleges of the University are as follows:

The College of Science, Literature and Arts

DEAN JOHN F. DOWNEY,
PROFESSOR F. L. MCVEY,
PROFESSOR WILLIS M. WEST,
PROFESSOR H. F. NACHTRIEB.

The College of Engineering

DEAN F. S. JONES,
PROFESSOR GEORGE D. SHEPARDSON.

The School of Mines

DEAN WM. R. APPLEBY.

The School of Chemistry

DEAN GEO. B. FRANKFORTER.

The College of Education,

DEAN GEO. F. JAMES.

The Graduate School

DEAN H. T. EDDY.

The College of the School of Agriculture

DEAN WM. M. LIGGETT,
PROFESSOR HARRY SNYDER.

The College of Law

DEAN WM. S. PATTEE,
JUDGE A. C. HICKMAN,

The College of Medicine and Surgery

DEAN F. F. WESBROOK.
PROFESSOR THOMAS G. LEE.

The College of Homeopathic Medicine and Surgery

DEAN EUGENE L. MANN.

The College of Dentistry

DEAN ALFRED OWRE.

The College of Pharmacy

DEAN FREDERICK JOHN WULLING

University Council Committees

The University Auditing Committee.

Professors Anderson, Sigerfocs, Springer, Fletcher, Owre.

The Committee on Athletics.

Professors Wesbrook, Paige, Brooke, West, Harding.

The Committee on Grounds and Sanitation.

Professors Wesbrook, Reynolds, Bass, Flather, Sideaer.

The Committee on Catalogue, Programs and Courses of Study.

Professors Frankforter, McVey, Pattee, Jones, Snyder, Appleby, Lee

The Press Committee.

Professors Schaper, Erdmann, Constant, Snyder, James.

The Committee on Commencement and other University Functions.

Professors Nachtrieb, Pattee, Eddy, Lee, Owre, Washburn, Schlenker.

The Committee on Student Entertainments and Social Affairs.

Professors Frankforter, Pike, White (S. M.), Bass, Willis.

The Committee on University Relations to other Institutions of Higher Learning.

Professors Downey, Folwell, Green, Lee, MacMillan.

The Committee on University Extension and University Lectures.

Professors James, MacMillan, Mann, Hecker, McVey.

The Committee on the Library.

Professors Eddy, Downey, Jones (D. P.), West, Lee, Jores (F. S.), Fletcher.

CALENDAR FOR 1906-1907

1906

1907

JULY

S.	M.	T.	W.	T.	F.	S.
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OCTOBER

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DECEMBER

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JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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University Calendar, 1906-1907

THE UNIVERSITY YEAR.

The University year covers a period of thirty-eight weeks beginning on the second Tuesday in September, commencement day being always the second Thursday in June.

FIRST SEMESTER.

SEPTEMBER	10 M	Entrance examinations and registration.	
	11 T	Entrance examinations and registration.	
	12 W	Entrance examinations and registration.	
	13 Th	Entrance examinations and registration.	
	14 F	Entrance examinations and registration.	
	15 S	Examinations end and registration completed....	1 w
	17 M	Classes called for regular work. (First College classes organized, 1869).	
	22 S	.....	2 w
	29 S	.....	3 w
OCTOBER	6 S	.....	4 w
	13 S	.....	5 w
	20 S	.....	6 w
	27 S	.....	7 w
NOVEMBER	3 S	.....	8 w
	10 S	.....	9 w
	17 S	.....	10 w
	24 S	.....	11 w
	29 T	Thanksgiving Day. Recess three days	
DECEMBER	1 S	.....	12 w
	8 S	.....	13 w
	15 S	.....	14 w
	22 S	Holiday recess begins (no classes).....	15 w
	25 T	Christmas Day.	
JANUARY	1 T	New Year's Day.	
	8 T	Work resumed in all departments.	
	12 S	.....	16 w
	19 S	.....	17 w
	26 S	Semester Examinations VII and VIII hour classes.	18 w
	28 M	Semester Examinations I hour classes	
	29 T	Semester Examinations II hour classes	
	30 W	Semester Examinations III hour classes	
	31 Th	Semester Examinations IV hour classes	
FEBRUARY	1 F	Semester Examinations V hour classes	
	2 S	Semester Examinations VI hour classes	

SECOND SEMESTER.

FEBRUARY	4 M	Second semester begins—Classes called for regular work.	
	9 S		1 w
	12 T	Lincoln's birthday—Holiday.	
	16 S		2 w
	18 M	University Charter, 1868. General Sibley died 1891.	
MARCH	22 F	Washington's birthday—Holiday.	
	23 S		3 w
	2 S		4 w
	9 S		5 w
	16 S		6 w
APRIL	23 S		7 w
	30 S		8 w
	6 S		9 w
	13 S		10 w
	20 S		12 w
MAY	27 S		13 w
	4 S		11 w
	11 S		14 w
	18 S		15 w
	25 S		16 w
JUNE	27 M	Senior examinations begin.	
	1 S		17 w
	3 M	Semester examinations. I hour classes.	
	4 T	Semester examinations. II hour classes.	
	5 W	Semester examinations. III hour classes.	
	6 Th	Semester examinations. IV hour classes	
	7 F	Semester examinations. V hour classes.	
	8 S	Semester examinations. VI hour classes.....	18 w

COMMENCEMENT WEEK 1907.

SUNDAY	June 9	Summer Vacation Begins.
MONDAY	June 10	Baccalaureate Service.
TUESDAY	June 11	Senior Class Exercises.
WEDNESDAY	June 12	Sigma Xi Address. Senior Promenade.
THURSDAY	June 13	Alumni Day.
		Commencement Day—The Thirty-fifth Annual Com-
FRIDAY	June 14	mencement.

PROGRAM OF EXAMINATIONS, SEPTEMBER, 1906

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS
 THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS
 THE SCHOOL OF MINES
 THE COLLEGE OF LAW
 THE SCHOOL OF CHEMISTRY.

The numbers placed after the subjects, when given, indicate the rooms in which the examinations will be held.

—DAY—	—HOUR—	—SUBJECTS FOR ADMISSION TO THE— FRESHMAN CLASS
Monday, September 10,	8:00—10:30	¹ Elementary Algebra.
	10:45— 1:15	¹ Higher Algebra.
	2:30— 5:00	¹ Plane Geometry.
Tuesday, September 11,	8:00—10:30	¹ Solid Geometry.
	10:45— 1:15	² All History Subjects.....17
	2:30— 5:00	² Civics 16
Wednesday, September 12,	9:00 a. m.	² Entrance English—required of those who have not taken the spring examination.....Chapel
	2:00—5:00	³ Geology 18
		³ Physiography 18
		² Commercial Geography 16
		⁶ Drawing 24
		⁶ Shop Work 16
Thursday, September 13,	8:00—10:30	² Political Economy.....16
		¹ German.
		¹ French.
	10:45— 1:15	¹ Latin Grammar.
Friday, September 14,	2:30— 5:00	¹ Greek.
		¹ Cæsar.
	8:00—10:30	¹ Cicero.
		¹ Virgil.
	10:45— 1:15	⁴ Chemistry.
		⁵ Physics.
	2:30— 5:00	³ Botany B
		³ Zoology 29
		¹ Astronomy 35

¹ Place to be announced; ² Library Building; ³ Pillsbury Hall; ⁴ Chemical Laboratory; ⁵ Physics Building; ⁶ The Shops.

Equipment

GROUNDS AND BUILDINGS

The University campus comprises about forty-five acres lying between University avenue and the river and between Eleventh and Nineteenth avenues Southeast. The campus is well wooded with a fine growth of native oaks and commands a beautiful view of St. Anthony Falls and the city, but is sufficiently removed from the business center of the city to insure desirable quiet and retirement. The buildings upon the campus number twenty, and are valued at over \$800,000. A special clinical building for the use of the department of medicine is located in the southern part of the city, where there is an abundance of clinical material, and within easy reach of the University. The campus is valued at about \$450,000 and the equipment of the buildings at about \$300,000.

The State Experimental Farm, upon which are located the buildings of the experiment station and the department of agriculture, consists of over two hundred and fifty acres of very valuable land, half way between the twin cities and within a thirty-minutes' ride of either city. The farm is valued at \$400,000, and the sub-stations located at Crookston and Grand Rapids, at \$30,000 more. The buildings and equipment of the department of agriculture are valued at over \$400,000.

NEW BUILDINGS.

The Legislature of 1905 appropriated \$350,000 for the erection of a "Main Building," of which \$200,000 is available in 1906, and \$150,000 will be available in 1907: this amount will be supplemented by \$60,000 received from insurance on the Old Main Building, destroyed by fire in September, 1905. This will give a total for building and equipment of \$410,000.

The building is now in process of construction. It will be 322 feet in length and three stories in height above the basement, with rooms

arranged on both sides of straight halls extending through the length of the building. It will provide class and seminar rooms, and offices for the departments of Astronomy, Mathematics, Greek, Latin, German, French, and Spanish, Scandinavian, Comparative Philology, Rhetoric and Oratory, Philosophy and Psychology, and Education. It will also contain the Scandinavian Museum, German Museum, Psychological Laboratory, Dean's Office, Faculty Parlor, Postoffice, Hall for Literary Societies, Men's Study Hall, Women's Study Hall, Minnesota Daily, Minnesota Magazine, Gopher, Cloak Rooms, Janitors' Rooms, Toilet Rooms, Work Shop, and Store Rooms.

The material is brick with cut stone trimmings.

The Legislature of 1903 appropriated the sum of \$100,000 for the erection of a building for pathology, bacteriology and hygiene. The building, which is known as the Institute of Public Health and Pathology, has been erected with the general group of medical buildings and will be ready for occupancy for the year 1906-07. It is 213 feet long by 100 feet deep in the central portion and consists of the central main portion, 60x100 feet, with north and south wings each 56x75 feet.

Space is provided on three floors for a museum and library. A Pasteur Institute is housed in this building for the treatment of and research in hydrophobia. The two large laboratories for teaching pathology, bacteriology and public health and numerous offices, private and research laboratories and a large amphitheatre are arranged with special attention to efficiency and convenience. The State Board of Health Laboratories are housed here in the end of the building adjacent to the special laboratory built by that Board some years ago. Photographic laboratories, workshops, cold storage and autopsy rooms are provided.

GIFTS MADE TO THE UNIVERSITY.

The will of the late Mrs. A. F. Elliott, formerly of Minneapolis, but more recently of California, left a bequest to the University, from which the Regents expect to realize at least \$125,000.00. The heirs have requested that this fund be used to erect a Hospital in connection with the Medical Department of the University.

The Hon. Thomas H. Shevlin has donated to the University \$60,000 for a "Woman's Building," to be known as the "Alice Shevlin Hall." The gift has been accepted by the Regents, and the building is now being erected on the site of the "Old Main" between the Library and Law buildings. It will be a two-story and basement structure, the material used being pressed brick with stone trimmings. It will have a frontage of 114 feet on Pillsbury Avenue and a depth of 55 feet. The purpose of this

building is to furnish suitable rest and study rooms for the women attending the University. The building will contain several Society Rooms, a large Lunch Room, and a general Reception Hall, all of which are greatly needed. It is expected that the building will be ready for occupancy at the commencement of the next college year, September 1st.

THE FINANCIAL MANAGEMENT OF THE UNIVERSITY.

The financial management of the University is in the hands of the "Board of Regents," except in the erection of new buildings, the purchasing of fuel, and the placing of insurance on buildings and contents, which are in the hands of the State Board of Control.

UNIVERSITY REVENUES.

The sources of the University income for Current Expense are three, viz: 1st, the United States Government; 2nd, the State, and 3rd, the University.

The U. S. Government gave to each of the States certain lands for educational purposes. The proceeds of these lands, as fast as sold, are invested in state bonds. These bonds are known as the University permanent fund, and at present amount to \$1,400,000. The annual interest on these bonds is at present about \$53,000. In addition to the interest on bonds, the University receives from the government the Hatch Bill appropriation of \$15,000.00, an appropriation for the benefit of the Experiment Station, and the Morrill Bill appropriation of \$25,000.00, an appropriation for the encouragement of the Departments of Agriculture, Mechanic Arts, and Military Science.

RECAPITULATION.

Interest on Bonds and land contracts.....	\$53,000.00	
U. S. Government, Hatch Bill appropriation.....	15,000.00	
U. S. Government, Morrill Bill appropriation.....	25,000.00	
Total from the Government		\$ 93,000.00
The University receives from the State an appropriation of 23-100 of one mill per dollar on a valuation of \$846,000,000, which will give about	\$194,000.00	
A flat appropriation called a deficiency appro. of..	60,000.00	
An appropriation for support of School of Mines..	5,000.00	
An appropriation for salaries of Mines and Elec. Eng.	4,500.00	
Total from the State		\$263,500.00

Amount received from Student's fees.....	\$126,000.00
Dental Infirmary receipts	12,000.00
Station & School, sales and fees	14,000.00
Miscellaneous Receipts, University	2,000.00

Total from University\$154,000.00

Total estimated current expense receipts for

1906 \$510,000.00

LIBRARIES

The following libraries are easily accessible to the University students: Minneapolis—The University Libraries, 110,000 volumes; the Public Library, 135,000 volumes; the Minneapolis Bar Association, the Guaranty Loan Law, and the New York Life Insurance Law Libraries, numbering a total of about 30,000 volumes, are open under certain restriction to law students; the Minnesota Academy of Natural Sciences, 12,000 titles.

St. Paul—The State Historical Library, 78,000 volumes; the State Library, 35,000 volumes; Public Library, 55,000 volumes.

The University Library consists of:

1. *The General Library.*
2. *College Libraries*, including those in Law, Medicine, Engineering, Agriculture.
3. *Departmental Libraries*, including those in Art, Astronomy, Animal Biology, Botany, Chemistry, French, Geology, German, Greek and Latin, History, Mathematics, Military Science, Pedagogy, Physics, Rhetoric, Scandinavian.

The private collections of professors are available when necessary for research.

The whole number of bound volumes owned by the University is about 115,000. Unbound books and pamphlets, about 30,000. About 500 current periodicals are received in the general and other libraries.

The departmental libraries consist mainly of books of reference and current periodicals relating to technical subjects.

The general library is open to students and the public from 8:00 a.m. to 9:30 p.m., every day of the University year, except Sundays and legal holidays.

The Law Library contains nearly all the English Reports, including those of Canada, from the earliest decisions down to the year 1900; nearly all the reports of the different states of the Union; all the reports of the United States Supreme court, and all the Federal Court reports. It contains also the digests of these reports and an excellent selection of standard text-books and law dictionaries.

The Nelson Law Library is a rare collection of fifteen hundred volumes, donated to the University by the Honorable R. R. Nelson, of St. Paul, upon retirement from the Federal bench. It contains many old English reports, in addition to those already mentioned, and many ancient treatises upon common law.

A rare and unique addition to the Law Library has been secured by the donation of Judge Collins and former Attorney-General Childs to the University of all the Briefs and Paper-Books in the cases argued in the Supreme Court of Minnesota since 1888, making a fine collection of over five hundred bound volumes.

The Medical Library contains a large and well assorted collection of books, sets of journals, bound and unbound pamphlets, relating to all branches of medicine. All of the leading medical journals are on file in the reading room. The various laboratories have also reference libraries devoted to their special lines of work.

The library was greatly enriched by the bequest of the late Dean, Perry H. Millard, M. D., who bequeathed his entire private medical library to the department. This collection consists of several hundred volumes and pamphlets, including many rare and old medical works, sets of journals especially rich in surgical works.

To all these library facilities may be added the Minneapolis Public Library, which is within easy reach of the University and is opened freely to the students of the University. This library contains over one hundred twenty-five thousand bound volumes and over fourteen hundred of the leading newspapers, magazines and periodicals of the world.

MUSEUMS.

The museums of the University contain material obtained from various sources, arranged with special reference to its use for illustration. Among the more notable collections are the following:

(a) *In Geology and Mineralogy.* The Kunz collection of minerals, purchased of George F. Kunz; several suites of crystalline rocks secured from various sources; The Ward collection of casts contributed in part by citizens of Minneapolis; collections of the rocks, fossils, minerals and economic products of Minnesota; upwards of 9,000 entries gathered by the geological survey of the State; the Sardeson collection of paleozoic fossils of Minnesota, Wisconsin, Iowa and neighboring states, comprising 30,000 specimens; a series of 3,000 thin sections of typical rocks and minerals largely representing Minnesota localities; purchased material comprising a fine collection of crystals; 5,000 minerals and 3,000 specimens of economic minerals and crystalline rocks, and a collection of over 4,000 photographs and lantern slides.

(b) *In Zoölogy*: All the material collected by the State Zoölogist; a collection of mounted Minnesota birds representing about one-third of the species found in the State; a number of the mammals of the State and a few from the more western states; a collection of fishes, molluscan shells, corals and other foreign material.

The ornithological room contains the excellent Thomas S. Roberts and Franklin Benner collection of skins, nests and eggs of Minnesota birds. Other groups of animals are more or less numerously represented, and are receiving annual additions from the Zoölogical Survey.

(c) *In Botany*: The general herbarium numbering about 25,000 specimens and comprising the series of plants collected by the State Botanist; an alcoholic collection of material for dissection; a collection of woods of Minnesota; a limited series of carboniferous and cretaceous fossil plants, including the Lesquereaux collection from the Minnesota River localities.

(d) *In Technology*: A cabinet of specimens illustrating the products and processes of applied chemistry is being collected by the Professor of Chemistry, as opportunity offers. The collection embraces fuel, ores, furnace products, textile materials, both raw and manufactured, dyewoods and other materials used in dyeing; specimens illustrating the bleaching and printing of cotton, linen and woollen goods, earthenware, pottery, etc.

(e) *In Classics*: Some material illustrating classical geography, topography, chronology, mythology, archaeology, and art has been collected, consisting mainly of plans and charts, casts, pictorial illustrations, facsimiles of manuscripts and inscriptions.

(f) *In English*: A few fac-similes of manuscripts, plates that may serve for the purpose of archaeological instruction, publication of texts, reprints of blackletter books and of original editions, photographs and portraits have been gathered.

(g) *In Civil Engineering*: The department is collecting samples of road material typical of the various localities of the State, and leading materials used in street paving, such as granite, trap rock, brick and asphaltum. A set of standard sections of steel and wrought iron is provided for illustration in the study of structural design.

(h) *In Mechanical Engineering*: The collection consists of models of mechanical motions especially relating to the work in kinematics; sectioned apparatus, such as injectors, water meters and steam separators; various collections of drop forging in iron, steel and copper; miscellaneous samples of commercial work representing the product of special machines; groups of standard nuts, bolts and screws; samples of belting, ropes, steel and iron cables, rawhide gears, and other material especially useful for illustrative purposes.

(i) *In Electrical Engineering Museum*: This museum contains a growing collection of samples furnished by various manufacturers and dealers for demonstrating the merits of different products and for illustrating modern practice; an excellent collection showing the development of electrical instruments, lightning arresters, switches, primary and secondary batteries, early forms of dynamos and motors, lighting apparatus and various industrial applications of electricity; also a collection of samples from repair shops and elsewhere, illustrating the effects of wear, accidents and abuse.

(j) *In Engineering Mathematics*: This department has recently added to its apparatus used for illustration in teaching, several types of slide rules, including those of Thatcher, Faber, Keuffel and Esser, Schureman's Computer, Boucher's Calculator; also Amsler's Polar Planimeter.

In Mathematics: The Schroeder wooden and the Schilling gypsum, string and paper models for Solid Analytical Geometry, many of the Schilling models for illustrating the Theory of Surfaces, several of the Schilling mechanical devices for describing various loci, the Keuffel and Esser models for Solid Geometry, and large slated globes, suitably mounted, for use in Spherical Geometry and Spherical Trigonometry.

ASTRONOMICAL OBSERVATORY.

The students' astronomical observatory contains a ten and one-half inch combined, visual, photographic and spectroscopic refracting telescope, constructed by Warner Swasey and Brashear; a photographic clock.

GYMNASIUM.

The Gymnasium is located in the Armory, and is well equipped with a variety of gymnastic appliances. The object of the Gymnasium is to provide all of the students of the University opportunity for exercise to build up their general health. It also provides special training to correct physical defects and functional derangements. The gymnasium is in charge of a professional Medical Director and Assistant and the training is under their direct supervision. A thorough physical examination is offered each student immediately before and after the gymnasium course, and a record is made of the same. The examination of these records shows a marked improvement in the standard of health of the average student during his college course. The Gymnasium is open at all times to all young men in the University who are free to use the apparatus and to pursue a course of physical training under the direct supervision of the Director and his assistant. In some of the Colleges of the University, this work is required of all men.

Organizations and Publications

RELIGIOUS.

The Students Christian Association was organized in 1869, its object being to promote growth in Christian character, and to engage in such religious work as may be deemed expedient and necessary.

The Association owns a commodious building, which serves as the headquarters for student religious activity. All persons in sympathy with the object of the association are eligible to membership.

The Young Men's Christian Association has as its object the promotion of "growth in grace and Christian fellowship among its members and aggressive Christian work, by and for students." This association leases the Students' Christian Association building and keeps it constantly open, with a General Secretary in charge. All men in sympathy with the object of the association are eligible to membership. This building is maintained as the social and religious headquarters of all young men in the University.

This Association also provides an employment bureau whose services are free to students in all departments of the institution, as well as a committee to help students to find comfortable rooms and boarding places. The Association also maintains an educational department in which students may make up their entrance conditions at a nominal charge for instruction.

The General Secretary will be pleased to correspond with any young man intending to come to the University. Any inquiry about board, room, employment, or general information will gladly be answered, and a handbook will be sent to anyone wishing it. Address the General Secretary of the Young Men's Christian Association, University of Minnesota, Minneapolis, Minnesota.

The Young Women's Christian Association is the center of Christian life among the young women of the University. Its object is "to deepen spiritual thought in the University woman, to environ her with a semblance of home, to bring to her friendship, assistance and sociability by stimulating student fellowship, to give her personal help when necessary; thus developing in her the Christ ideal of culture in womanhood."

To this end frequent socials and informal teas are given throughout the year; twice each week twenty minute prayer meetings are held, a dozen circles meet one hour a week for devotional Bible study; and from time to time missionary meetings are held. The General Secretary

devotes all of her time to the Association and will be pleased to correspond with any young woman who wishes information regarding the University.

All young women are invited to visit the Young Women's Christian Association room before registering. Women from the upper classes will be there during the opening days to give advice and assistance.

Any inquiry about board, room, employment, or general information will gladly be answered by Miss Agnes Crounse, '07, 3840 Richfield Ave., Minneapolis.

The University Catholic Association was organized by the Catholic students in the spring of 1900. The purpose of the Association is the study of the Bible and of the doctrines and history of the Catholic Church. Membership is open to any one connected with the University. Regular meetings are held every Sunday afternoon in the rooms of either the Young Men's or the Young Women's Christian Association, through the courtesy of those organizations. The Association is planning to erect a building on or near the campus at an early date.

Aside from the religious objects, the Association tends to promote good fellowship among its members. Early in each University year a reception is tendered to new students and during the year two or more socials are held.

Further information may be obtained by addressing the Secretary of the Association at the University.

DEBATE AND ORATORY.

Literary Societies.—The literary societies are mainly debating clubs. Every student is welcome to attend the literary sessions, but the business sessions are usually held behind closed doors. Students desiring to join should make early application to some member of the society he prefers, as the membership is limited.

The Minnesota Literary Union—Is a federation of the members of the following societies: Shakopean, Forum, Castalian, Minerva and Arena. Four meetings are held each year.

Membership Limit: *Shakopean*, 35, men; *Forum*, 30, men; *Minerva*, 30, women; *Law Literary*, unlimited, law students; *Castalian*, 35, men; *Theta Epsilon*, 30, women; *Thalian*, 25, women.

The Debating Board has charge of home and inter-collegiate oratorical contests.

The Northern Oratorical League is composed of the oratorical associations of the University of Michigan, Northwestern University, the University of Wisconsin, Oberlin College, the State University of Iowa, the University of Chicago, and the University of Minnesota. Its purpose is to foster an interest in public speaking and to elevate the stand-

ard of oratory by holding annual contests. The contests are open only to undergraduates.

The Iowa-Minnesota League is composed of the two universities and holds an annual contest in debate.

The Central Debating League is composed of the debating associations of the University of Michigan, the University of Minnesota, Northwestern University, and the University of Chicago. Its purpose is to discuss in public leading questions of the day and in this way to develop ready and forceful speakers.

The four universities are arranged in two groups for the semi-final debates, which are held the second Tuesday in January. On the first Friday in April in each year, the winners from the groups meet in a final debate in the city of Chicago.

The University competes annually for the *Hamilton Club* prize. Michigan, Minnesota, Wisconsin, Iowa, Ohio, Indiana, Northwestern and Chicago Universities and Knox College constitute the league. Each of the colleges named submits one oration upon Alexander Hamilton or some character or event connected with his time. From the orations submitted four are chosen to be delivered before the Hamilton Club.

MUSICAL, SOCIAL AND OTHER ORGANIZATIONS.

The Women's League is an organization of the women of the University for mutual helpfulness and sociability.

The Dramatic Club is organized for the study and practice of dramatic art. One or more plays are put on the stage each year.

The Glee and Mandolin Clubs give a public concert each year at the University and make a tour of the state during the holidays.

The University Band is organized as a part of the military system of the University and is composed of about sixty musicians. It is under the efficient leadership of an Instructor in Music, and furnishes music for military and many other University affairs.

LITERARY AND SCIENTIFIC ORGANIZATIONS.

Phi Beta Kappa.—A chapter of the honorary society of *Phi Beta Kappa* was established at the University in 1892. A small proportion of the graduates of the College of Science, Literature and the Arts are elected to membership each year. Election is based upon high scholarship and character.

The Philological Society.—The object of the Philological Society is to promote philological investigation and study.

Greek Club is a society composed of professors, students and alumni

of the Department of Greek for the study of Greek life, language and customs.

Societas Latina is a society in the Department of Latin, having for its special aim the securing of greater proficiency in reading and writing Latin.

The Scandinavian Literary Club is an organization whose purpose is to promote interest in the study of Scandinavian literatures.

The Philosophical Club meets bi-weekly in the evening during the winter months to read and discuss contemporary philosophy. The membership consists of the professors, instructors, and qualified students of the department.

The Economic Club meets twice a month for debate in economic and political subjects.

The Graduate Club is a club organized for the purpose of fostering a greater interest in graduate work, for mutual help, and for the discussion of topics under investigation.

The University Liberal Association is an organization of students and faculty members formed for the discussion of topics of broad and current interest. It meets twice a month, usually on Saturday evening.

Sigma Xi.—A chapter of the honorary scientific society of *Sigma Xi* was established at the University in 1896. A small proportion of the graduates of the scientific, and technical department are elected to membership each year. Election is based upon high scholarship and character.

American Chemical Society.—A local section of the American Chemical Society has been organized in Minnesota with headquarters at the University.

The Camera Club is an organization of instructors and students interested in photography and photographic chemistry.

The Geological Club is an organization of instructors and students interested in geology, for the discussion of geological problems.

The Botanical Students' Journal Club is an organization of juniors, seniors and graduate students, of the Department of Botany, for the review of current botanical literature.

The Zoölogical Journal Club for instructors and advanced students who meet for the discussion of current zoölogical literature.

The Zoölogical Reading Club meets evenings at the homes of the professors and is for instructors and graduate students. Its purpose is the reading and discussion of philosophical works on Zoölogy.

The Physical Colloquium is composed of instructors and graduate students and meets for the discussion of recent investigations in physical science.

The Society of Engineers meets once in two weeks to listen to addresses by prominent engineers and for the discussion of various

engineering topics. The Year Book of this society is published annually. It is devoted to the publication of articles upon engineering subjects by professors and students in the College of Engineering and the Mechanic Arts.

The Mining Society is an organization of mining engineering students who meet for the purpose of hearing lectures and discussing mining engineering problems.

The Mathematical Society is composed of professors, assistant professors and instructors whose work is in Pure or Applied Mathematics, and meets the third Wednesday of each month for the discussion of mathematical subjects.

PUBLICATIONS.

The University Bulletins are published by authority of the board of Regents twelve times a year—every four weeks during the University year. Bulletins will be sent gratuitously, postage paid, to all persons who apply for them.

The Minnesota Alumni Weekly is published every Monday during the University year. The Weekly is published entirely in the interest of the alumni and is devoted to alumni news and such University news as may be of special interest to the alumni.

The Minnesota Daily is published five times each week during the University year by an organization of University students.

The Yearbook of the Society of Engineers is published annually by the engineering students.

The Junior Annual, called the "Gopher," is a book published annually by the junior class of the University.

The Minnesota Magazine is a monthly magazine devoted to the cultivation of literary taste and effort among the students of the University. It is managed by a board of editors chosen from the senior class.

ATHLETICS.

The Athletic Association is an organization having for its object the general physical well-being of the students and the encouragement of a proper spirit in favor of hearty, manly sports.

Control of Athletics. The athletic sports of the University are under the supervision of a Board of Control made up of eleven members; two are members of the faculty, two are alumni and seven are students. This board has general supervision of all matters connected with athletic contests and arranges the schedule of games. It is the purpose of the board to foster a spirit in favor of fairness and honesty in all athletic contests.

Northrop Field is an enclosed athletic field containing about six acres, immediately adjoining the armory. It is surrounded by a high brick wall, the gift of A. F. Pillsbury, and is one of the finest athletic fields in the country.

Scholarships and Prizes

UNIVERSITY SCHOLARSHIPS

It is the policy of the University to establish scholarships in the different departments, where extra help is needed for instruction, under regulations somewhat as follows:

1. The appointments are made by the Executive Committee of the Board of Regents, upon the recommendation of the department in which the appointment is desired, after approval by the General Faculty.

2. Recipients of scholarships may be either graduate or undergraduate students.

3. The scholarships are not intended as gifts or benefactions from the state to the recipients, but as provisions under which services may be rendered the University.

4. It is understood that these services are of a nature which shall assist the holder of a scholarship to attain the mastery of some line of work in the department to which he is appointed.

ENDOWED SCHOLARSHIPS

THE MOSES MARSTON SCHOLARSHIP IN ENGLISH.

Friends and pupils of the late Professor Marston, Ph. D., have given and pledged one thousand dollars as a memorial fund. The annual income of the fund is to be used to help some student in the long English course. The award of the income is made on the basis of pecuniary need and of deserving scholarship.

THE ALBERT HOWARD SCHOLARSHIP FUND.

Under the last will and testament of Mr. James T. Howard, of the town of St. Johnsbury, Vermont, \$4,166.81 was left to the University to establish a scholarship to be known as the "Albert Howard Scholarship." This scholarship is assigned by the Executive Committee upon the recommendation of the General Faculty.

STUDENT LOAN FUNDS

THE ELLIOT SCHOLARSHIP LOAN FUND.

To fulfill the wish of the late Dr. A. F. Elliot to aid young men who find their efforts to obtain a practical education embarrassed through lack of means, the income of \$5,000, amounting to \$250 per year, is placed in the hands of the Board of Regents to be used as a scholarship loan fund for assisting young men in the school of mines.

The conditions of granting the scholarship loans are: The financial needs of the applicant, his scholarship, moral character, enthusiasm shown in his work and promise of usefulness in his profession. When money is available it may be loaned to pay expenses of worthy students during sickness. The loans are to repaid, without interest, at the earliest convenience of the recipients.

THE GILFILLAN TRUST FUND.

The Honorable John B. Gilfillan has given to the University the sum of fifty thousand dollars, yielding an annual income of two thousand dollars, to be used by the Board of Regents to assist worthy students, needing such aid, to secure an education. The Regents are empowered to give this aid in the way of loans or gifts, according to the circumstances of the case. As a rule the fund is used as a loan fund, and a small rate of interest is charged. The details of the regulations which have been adopted by the Regents for the administration of the fund may be learned by addressing the President of the University.

PRIZES.

THE PILLSBURY PRIZE.

Three prizes of \$100, \$50 and \$25, offered by the heirs of the Hon. John S. Pillsbury, are awarded for the best work in the Department of Rhetoric, as evidenced finally by an oration in public.

THE '89 MEMORIAL PRIZE IN HISTORY.

The class of 1889, at graduation, established a prize of \$25 each year, to be known as the '89 Memorial Prize, and to be given for the best thesis in history. The award is made by a Professor of History in some other institution.

THE DUNWOODY PRIZE.

Mr. William H. Dunwoody, president of the St. Anthony and Dakota Elevator Company, has provided a cash prize of \$75 for the members of

the team winning the inter-sophomore debate, and another prize of \$25 for the student in the sophomore class writing and delivering the best oration.

THE PEAVEY PRIZE.

Mrs. Heffelfinger continues the prize of \$100, established by her father, the late Frank H. Peavey. This prize consists of \$75 for the members of the team winning the freshman-sophomore debate, and another prize of \$25 to the student in the freshman or sophomore class writing and delivering the best oration.

THE WYMAN PRIZE.

A prize of fifty dollars is offered by the Honorable James T. Wyman, of Minneapolis, through the department of political science, for the best essay of three to five thousand words by an undergraduate student, on the subject of "The Influence of Immigration upon the Development of the Northwest."

THE WILLIAM JENNINGS BRYAN PRIZE.

The Hon. William Jennings Bryan has given the University the sum of \$200.00 for the encouragement of studies in political science. The annual income will be given as a prize to the writer of the best essay upon a topic to be announced each year. The competition is open to all students of the College of Science, Literature and the Arts.

THE BRIGGS PRIZE IN FOUNDRY PRACTICE.

For the encouragement of studies in foundry practice, Mr. O. P. Briggs, Commissioner of the National Foundrymen's Association, Detroit, Mich., offers \$75 annually, in two prizes, which are to be accompanied by gold medals. The competition is open to sophomores in the College of Engineering, and the prize will be awarded for the best essay relative to the above subject. No prize will be awarded if less than five essays are submitted in competition. Essays should contain about 3,000 words, and must be submitted to the Professor of Rhetoric on or before May 1st.

THE LOWDEN PRIZE.

Mr. Frank O. Lowden, of Chicago, offers as a prize to be competed for by the Northern Oratorical League, an endowment of \$3,000, which will yield an annual income of about \$175. A prize of \$100 will be given

to the winner of the first place, \$50 to the orator who gets second place, and the remainder will be set aside each year for an interest fund to accumulate, and, in time, produce another endowment.

MINNEAPOLIS LIFE UNDERWRITERS ASSOCIATION'S PRIZE.

A prize of fifty dollars is offered by the Minneapolis Life Underwriters Association for the best essay on life insurance written by a senior of the class of 1906. Essays should contain at least 3,000 words and be presented to the Professor of Political Economy on or before May 21, 1906.

THE ROLLIN E. CUTTS PRIZE IN SURGERY.

Dr. Mary E. Smith Cutts, '91 Medical, has given the University, as a memorial of her husband, Dr. Rollin E. Cutts, '91 Medical, the sum of \$500.00, the income from which is to be awarded in the form of a gold medal to that member of the senior class of the College of Medicine and Surgery who presents the best thesis showing original work upon a surgical subject.

General Information

THE ONE-MILE LIQUOR LAW.

A state law provides that "it shall be unlawful for any person to sell or dispose of any spirituous, vinous, or malt liquors within the distance of one mile of the Main Building of the University of Minnesota, as now located in the city of Minneapolis; provided, that the provisions of this section shall not apply to that part of the city of Minneapolis lying on the west side of the Mississippi River."

MILITARY DRILL.

The act of Congress of 1862, providing for the establishment of "Land Grant Colleges," requires that instruction be given in Military Science and Tactics at all institutions that are its beneficiaries. The Armory is located on the University campus and has all the facilities usually provided in a modern Armory. The United States Government supplies the University with the necessary arms, equipment and ammunition for instruction in infantry and artillery drill, and details a commissioned officer of the regular army to take charge of the department.

EXPENSES OF STUDENTS.

Several years ago a number of young men and women, at the request of University officials kept careful account of their expenses for the University year. The result was that the expenses of the young men ranged from \$217.00 to \$397.00. The same students earning sums varying from \$237.00 to \$272.00. The young women reported expenses varying from \$150.00 to \$355.00. These figures do not include fees, and, as the cost of living has increased decidedly, probably 25 per cent should be added to these figures to make them safe.

The students upon whose statements these figures are based were representative students; they were not extravagant nor did they deny themselves unduly to get along. While students can live within the figures given above, they would not, owing to the increased cost of living, be able to live as comfortably nor to have as many privileges as these students had.

Board can be had at prices ranging from \$2.10 to as high as the student

can afford to pay. In private families board ranges from \$3.00 to \$5.00.

Furnished rooms vary in price from \$8 to \$20 per month. Two students rooming together would of course reduce this expense. It is sometimes possible for a student, rooming alone to secure a good room at an expense but little higher than when two room together; but such chances are the exception and not the rule. New students will find that they will be more likely to secure comfortable rooms and suitable board if they will consult the general secretary of either the young men's or young women's Christian association immediately upon arrival at the University, or if they will correspond with these officers before coming to the University.

The student who learns some trade before coming to the University has a great advantage over the student who has to earn his money by ordinary manual labor. Students have earned their whole expenses while attending the University, and have made good records at the same time. Other students have done so much work that they have not been able to keep up their studies, and have thus missed the one thing for which they were attending the University.

If it is possible for the student to have a part of his expenses paid, he should not attempt to earn his way entirely by his own exertions. It is a comparatively easy thing for a young man to earn half his living while attending the University and yet do good work in his classes. Students who want work seldom fail to find it. In coming to the University, the student should bring enough money with him so that he can live comfortably for a few weeks until he can find something to do.

A pamphlet has been published containing five papers (one by a young woman), relating actual experience of students who have made their way through the University.

Students who contemplate making their own way through college will find here stated the stern and unpleasant side, as well as the brighter side of such a life. A copy will be sent free to any address upon application.

The College of Agriculture

THE FACULTY.

CYRUS NORTHROP, LL. D., *President.*

WILLIAM M. LIGGETT, *Dean.*

SAMUEL B. GREEN, B. S., *Professor of Horticulture and Forestry.*

HARRY SNYDER, B. S., *Professor of Agricultural Chemistry.*

T. L. HAECKER, *Professor of Dairy Husbandry.*

M. H. REYNOLDS, M. D., V. M., *Professor of Veterinary Medicine and Surgery.*

ANDREW BOSS, *Professor of Agriculture and Animal Husbandry.*

FREDERICK L. WASHBURN, M. A., *Professor of Entomology.*

D. D. MAYNE, *Principal of School of Agriculture, Agl. Pedagogics.*

FANNIE C. BOUTELL, *Preceptress.*

INSTRUCTORS.

J. A. VYE, *Farm Accounts.*

J. M. DREW, *Blacksmithing, Poultry.*

JUNIATA SHEPPERD, M. A., *Domestic Science.*

MARGARET BLAIR, *Domestic Art.*

JOHN A. HUMMEL, B. Agr., *Agricultural Chemistry.*

C. P. BULL, B. Agr., *Agriculture.*

WILLIAM BOSS, *Farm Structures.*

A. L. EWING, M. S., *Agricultural Physics.*

ASSISTANT INSTRUCTORS.

A. G. RUGGLES, M. A., *Entomology.*

D. A. GAUMNITZ, M. Agr., *Animal Husbandry.*

A. D. WILSON, B. Agr., *Agriculture.*

E. C. PARKER, B. Agr., *Agriculture.*

C. C. LIPP, D. V. M., *Physiology and Veterinary Medicine.*

E. G. CHEYNEY, B. S., *Forestry.*

In the College of Agriculture, three regular courses of study are offered: A course in agriculture, a course in forestry, and a course in home economics.

REQUIREMENTS FOR ADMISSION TO ALL COURSES IN THE COLLEGE OF AGRICULTURE.

Graduates of the school of agriculture, who have completed the studies prescribed in the intermediate course, or fourth year, and graduates of approved high and normal schools, as approved by the committee on entrance requirements and course of study, are admitted to the freshman class in the courses in the college of agriculture; the former to Division "A," and the latter to Division "B."

Students who take courses in the College of Science, Literature and the Arts, or in other colleges of the University are required to conform to rules published in the bulletins of the respective colleges.

Students from other colleges and universities: Graduates from other colleges and universities may be admitted upon presentation of certificates, and will receive credit from the several professors for all work satisfactorily completed of similar character and grade to that given in this course.

Special students: Graduates of the school of agriculture may be admitted as special students and be allowed to pursue such studies in the course offered in the college of agriculture as are approved by the faculty.

All students in the college of agriculture must advise with the dean or the committee on college and graduate work concerning all electives. No student is allowed to enter any course until such course is properly entered upon the student's registration card by the registrar of the University, and no credit shall be given for subjects in which the student has not been previously registered.

GRADUATE WORK.

Special facilities are offered to graduate students from this and other agricultural colleges who wish to become familiar with methods employed in experiment station work, and to pursue their collegiate studies further. Courses for major and minor subjects may be arranged by consulting the professors in the different divisions. Students who enter for advanced degrees register with the committee on registration of the college of agriculture and also within the graduate school and must take their major subjects in the college of agriculture, but they may take one or both of their two minor subjects in the college of science, literature and the arts or in the college of engineering and the mechanics arts. graduate students registered in the graduate school may take one or both of their minor subjects in the college of agriculture.

I. The degree of Master of Science in Agriculture will be conferred on a bachelor of this or any other agricultural college of equal grade who, not sooner than one year after graduation, if a resident graduate student at this agricultural college, shall pass an examination in certain prescribed

lines of study and present a satisfactory thesis in accordance with the requirements of the graduate school.

II. All general regulations of the graduate school governing candidates for the master's degree, method of selecting work, amount of work required, degree of proficiency expected, and the time and manner of conducting the examinations, apply to candidates for master's degrees in the college of agriculture.

III. The degree of Doctor of Science will be conferred by the graduate school for study in the college of agriculture on bachelors of this or any other agricultural college of equal grade within not less than three years after graduation therefrom under conditions prescribed by the faculty of the graduate school.

FEES.

All students in the college, who are residents of the state of Minnesota, are charged an incidental fee of ten dollars a semester. Non-residents are charged double the fee required of residents of the state, or twenty dollars a semester. No reduction is made for late entrance or for leaving before the end of the semester. In addition to this fee, students who take work in laboratories are charged a sum sufficient to cover the cost of material and breakage.

REQUIREMENTS FOR GRADUATION AND DEGREES.

After the completion of the prescribed course of study, including all of the required work and the requisite amount of elective work, together with such practical experience as may be required by the committee on college course, students in the courses in agriculture will be recommended for graduation with the degree of Bachelor of Science in Agriculture; students in forestry with the degree of Bachelor of Science in Forestry; and students in the course in home economics with the degree of Bachelor of Science in Home Economics.

The elective studies designed as academic are to be chosen from the printed semester programs of work offered in the colleges of science, literature and the arts; law; medicine; and engineering; no student to take more than two semesters in either of the three last named colleges. The elective studies designated as agricultural are to be chosen from the printed program of work offered in the college of agriculture.

THE COURSE IN AGRICULTURE.

The course in agriculture is designed to give the student a broad education in the sciences and arts relating to agriculture and to fit him for the work of the agricultural specialist. The physical and biological sci-

ences are made prominent. The work in these subjects is begun in the first or second year and may be continued throughout the course. For the first two years, the lines of study are prescribed, the subjects being chosen with a view of giving a good foundation for the work which follows. For the last two years, the work is mostly elective and gives the student an opportunity to take work along certain lines for which he has a special aptitude and liking.

In the college of agriculture a portion of the work is taken in the college of science, literature and the arts. All academic electives and the prescribed work in higher algebra, drawing, geology, German, French, rhetoric, trigonometry, botany, zoology, psychology, English literature, logic, philosophy, pedagogy and history are taken in the college of science, literature and the arts. The agricultural electives and the prescribed subjects not mentioned above are taken at University Farm.

The classes in the college of agriculture begin with the opening of the regular University year (for which see calendar) except the Freshman class which begins Monday, Sept. 10, and closes Saturday, June 2.

GENERAL COURSE IN AGRICULTURE

FRESHMAN YEAR.

DIVISION "A."

For graduates of the School of Agriculture.
(Numbers after subjects indicate number of hours per week.)

FIRST SEMESTER.

Mathematics [3]
German [5]
Botany or Zoology (long) [3]
Geology [3]
Horticulture and dairy practicums
and debate [3]
Military drill [2]
Rhetoric [3]

SECOND SEMESTER.

Mathematics [1½]
German [5]
Botany or Zoology (long) [3]
Chemistry [1½]
Horticulture and dairy practicums
and debate [3]
Military drill [2]
Rhetoric [3]
Drawing [3]

FRESHMAN YEAR.

DIVISION "B."

For graduates of approved high schools or others of equal standing. Students in this division take part of their work in classes of the school of agriculture. For descriptions of these courses see statement under school of agriculture.

First half of first semester.

Farm development [3]
Forestry (September) [3]
Dairy Chemistry (September) [3]
Blacksmithing (September) [3]
Agricultural practicums [3]
Farm zoology [3]

Handling grain and farm machinery [3]
Fruit growing [3]
Carpentry [3]
Library classification [3]
Field-crops [3]

AGRICULTURAL SCHOOL YEAR.

FIRST TERM.

Dairy husbandry [2½]
Breeding [2]
Agricultural chemistry [5]
Fruit growing [3]
Veterinary [2]
Entomology [5]
Physics [5]
Forestry [3]
Military drill [2]
Gymnasium [2]

SECOND TERM.

Dairy husbandry [2½]
Feeding [2]
Soils and fertilizers [5]
Vegetable gardening [3]
Veterinary [2]
Study of breeds [5]
Plant propagation [3]
Military drill [2]
Gymnasium [2]
Economics [3]

LAST HALF OF SECOND SEMESTER.

Chemistry [3]
Poultry [3]
Blacksmithing [3]
Farm accounts [3]
Dairy stock and judging [3]

Farm development [3]
Stock judging [3]
Live-stock practicums [3]
Field crops [3]

SOPHOMORE YEAR.

Botony or zoology, long, (A) [3]
Botony or zoology, short, (A) [3]
Botany, short, (B) [3]
Zoology, short, (B) [3]
Scientific German or French [3]
Chemistry [3]
Agricultural physics [1½]
Agricultural and Animal husbandry
practicums and discussions [1½]
Rhetoric [1]
Military drill [3]

JUNIOR YEAR.

FIRST SEMESTER.

Industrial botany [3]
Foods [2]
Thremmatology [3]
Agricultural, elective, (A) [3]
Taxonomy (B) [3]
Academic elective [3]
Elective [3]

SECOND SEMESTER.

Plant pathology [3]
Animal feeding [3]
Soils and fertilizers [2]
Farm management [3]
Agricultural, elective (A) [3]
Academic elective [3]
Taxonomy (B) [3]

SENIOR YEAR.

Comparative physiology [3]
Field crops [3]
Farm structures [3]
Elective [3]
Elective [3]
Elective [3]

Veterinary, elective [3]
Stock judging [3]
Horticultural elective [3]
Elective [3]
Elective [3]
Elective [3]

JUNIOR AND SENIOR ELECTIVES.

AGRICULTURAL ELECTIVES.

Animal taxonomy [3]
Research (dairy, animal husbandry,
horticulture and agriculture)
Greenhouse management [2]
Taxonomic botany [3]
Plant ecology [3]
Agricultural engineering [3]
Chemical laboratory practice, courses
III, VII, VIII, [3]
Animal breeding [3]
Fruit growing [3]
Dairy management [2]
Plant breeding (horticultural) [3]
Plant breeding (agricultural) [3]

Agricultural chemistry, lecture
courses IV, V, [2]
Diseases of animals [2]
Bibliography of agricultural litera-
ture [3]
Animal parasites [2]
Geology [3]
Bacteriology [1]
Soiling crops [2]
Economic entomology [3]
Land surveying [3]
Seeds and seed judging [3]
Agricultural economics [3]

ACADEMIC ELECTIVES.

Economics [3]
 Literature [3]
 Language [3]

Elocution [3]
 History [3]
 Sophomore debate [3]

AGRICULTURE.

Equipment: The general equipment of University farm is available for class and special instruction and for practice work. A seed breeding laboratory furnishes facilities for special instruction in field seeds and in laboratory work in plant breeding. The plant breeding nurseries, the variety testing and the seed distribution, afford facilities for instruction and practice to students especially interested in these lines of work. The experiments and records in field management, in crop rotation and in for gaining experience. Instruments of precision make practical the incultivation experiments provide material and opportunities for study and struction in planning farms, land drainage, road making, and fence building. The farms of the vicinity serve as a basis for designing farm plans and farm business, and rural engineering problems can be worked out in nearby rural communities. Many useful samples, drawings, photographs, and references are being collected. The exhibits of machinery at the state fair grounds adjoining University farm, and those on exhibition in the warehouses of Minneapolis and St. Paul, supplement the collection in use at University farm. Students can study the merchandising of grain, the inspection and the grading of the various grain products in the twin cities. Statistics relating to the cost and profit of each staple farm crop are being gathered by special agents in three representative counties of the state.

A portion of the instruction in agriculture is in the form of lectures. The writing of papers on special subjects is made a prominent feature. Research work is arranged for in many cases, and practice work on the farm and in the laboratory is provided. The aim is to have students get experience in field agriculture, both practical and experimental, and in demonstration instruction.

(Unless otherwise specified all courses are three credit hour courses.)

Course I. Seeds.

[One semester.]

In this course the students are made acquainted with the physical botany, the uses, identification, vitality, testing, grading and judging of all classes of field seeds. Special attention is given to the reproducing value of seeds of various grades of grains and to the importance of testing. A thesis upon some phase of the subject of seeds is required for full credit.

Course II. Field crops.

[One semester.]

In this course are considered the botany, cultivation, and economic value of the various cereal, forage, root, fiber, sugar and miscellaneous crops. Special attention is given to the subjects of meadows, pastures, soilage crops, and to the production and preservation of all kinds of dry cured and ensilaged crops.

Course III. Thremmatology.

[One semester.]

Heredity, variation, laws of breeding, the art of breeding, improvement by nature and under scientific experimentation, securing foundation stocks, value of using very large numbers, immense value of the occasional individual which can transmit qualities of peculiar value, use of an ideal, use and misuse of the score card, both numerical and graphic, intrinsic qualities, fancy points and distinguishing marks, statistical methods in breeding, pedigree records of efficiency, fundamental principles underlying the arrangement of the record books, bibliography and terminology, study of the literature of breeding.

Course IV. Plant breeding.

[One semester.]

Botany of the reproductive organs of field crops, field crop nursery management, producing new qualities by hybridizing and by change of environment, hybridizing versus cross-breeding, in-breeding and self fertilization, originating varieties and improving standard varieties by selection and by hybridizing followed by selection, methods of disseminating new varieties, seed and plant introduction, experimentation in the theories relating to heredity, variation and practical breeding, seed growing as a farm business, seed merchandising. The breeding of each of the various field crops grown in Minnesota.

Course V. Agricultural engineering.

[One semester.]

Subduing prairie and timber soils, land drainage, farm land mensuration and surveying; irrigation and irrigation works; roads, their location, maintenance, laws and construction, financial support; farm fences, buildings, implements and machinery.

Course VI. Agricultural economics.

[One semester.]

Labor, farm finances, markets, rentals, agricultural statistics, production, exports, wages, land laws, ownership, taxes, organizations.

Course VII. Farm management.

[One semester.]

In this course are considered the planning of farms, crop rotation, tillage, and systems of farming. Special attention is given to revising and drafting farm plans and to arranging economic crop rotations, and application of business methods to farm operations. *Agricultural practicums.* Opportunities to gain practical experience, to acquire greater manual dexterity in doing farm work, to secure practice in conducting experiments and to get experience in teaching agricultural subjects, are offered to college and graduate students, when practicable. Students should arrange early in their course for this work, as the opportunities in plant breeding, in rural engineering, in field crops, in agricultural statistics and in assisting instructors in the various courses are available only at irregular intervals and must be arranged for in advance.

AGRICULTURAL CHEMISTRY.

Equipment. A special laboratory with modern apparatus for the analysis of soils, foods and agricultural products is provided. The equipment contains an experimental mill for the production of wheat flour, a Berthelot-Atwater calorimeter for the determination of the caloric value of foods, vacuum ovens, apparatus for the chemical and physical analysis of soils, an electrical apparatus for determining the resistance of soils to soluble salts, and the necessary facilities for human and animal food investigations. Special facilities are offered in soil investigations and in the analysis and testing of wheat, flour and cereal products for commercial purposes. The laboratory is equipped with a complete experimental

flour mill for testing the milling and commercial value of different kinds of wheat. Standard reference books and journals, including *Jahresbericht der Agrikultur Chemie*, *Coptes Rendus*, *Biedermann's Centralblatt*, *Annals de la Science Agronomique* and *Versuchs-Stationen* are provided for the advanced work in agricultural chemistry.

Fees. In all of the laboratory courses in agricultural chemistry, a fee is charged to cover the cost of material used, and breakage. The student is assigned a certain amount of apparatus and material for which he gives a receipt, and deposits \$3 with the accountant before beginning work. All apparatus returned in good condition at the close of the term is credited to the student's account upon settlement.

Two and one-half semesters of chemistry are required in the freshman and sophomore years. All other courses are elective.

Course I. (a) General agricultural chemistry. [One-half semester.] Freshman II.

Recitations, lectures and laboratory practice. Particular attention is given to the study of the elements and compounds which are of the most importance in agriculture. The laws governing the combination of the elements by weight and volume are illustrated by numerous problems. The writing of equations, chemical nomenclature, and the periodic system of classifying the elements are prominent features of the work. In the laboratory, experiments are performed illustrating the general laws of chemistry which have a bearing upon animal and plant life.

(b) A continuation of I (a).

Sophomore I. [One semester.]

Course II. Agricultural qualitative analysis.

Sophomore II.

This course is arranged to meet the wants of agricultural students. Six hours per week are given to the laboratory work and one period to a lecture and recitation. The writing of equations and the study of principles involved in the separation of the various groups and individual compounds of elements are characteristic features of this work. It is the object of this course to familiarize the student with the processes employed in qualitative analysis so that he may be able to determine the composition of all ordinary substances, particularly of those that are of the most importance in agriculture.

Course III. Agricultural quantitative analysis.

Junior and senior I.

[One semester.]

An elementary course in quantitative analysis. The principles involved in gravimetric and volumetric analysis are studied. Three periods per week are given to laboratory work and one period to a recitation and lecture. The work includes the gravimetric and volumetric determinations of iron, acidimetry and alkalimetry, the gravimetric determination of phosphorus pentoxide, the volumetric determination of calcium oxide and determination of nitrogen and potassium oxide. The object of this course is to prepare the student for special work in agricultural chemistry, and is required of all students who elect either courses VI or VII.

Course IV. Human and animal foods.

[One-half semester.]

Lectures. This course treats of the composition, digestibility and nutritive value of human and animal foods. The chemistry of plant growth, particularly the factors which influence their composition and nutritive value form an essential part of this course. The processes employed in the preparation of foods as the milling of wheat and other cereals, the economic uses of human and animal foods, the comparative value of foods, and the methods employed in nutrition investigations, particularly in proteid and carbohydrate metabolism and the losses of energy from the body are studied. Dietary studies, the cost of foods, and influence of different methods of preparation upon their nutritive value are

also included in the work. It is the object of this course to familiarize the student with the fundamental principles of nutrition and the use of the literature upon the subject. Special attention is given to the economic production of foods and their utilization for human and animal food purposes.

(This course is given only in alternate years. Given during the last half of the second semester 1907.)

Course V. Soils and fertilizers.

[One-half semester.]

Lectures. This course treats of the relation of soils and their fertility to the production of crops, and includes a study of the sources of plant food and the influence of tillage and manures upon the chemical and allied physical and biological changes which take place in the soil in rendering plant food available. Rock disintegration and soil production, the various types of soil formed from different kinds of rocks and their agricultural value, and the inherent fertility of soils form an essential part of the work. The control of the water in the soil, soil solutions, and leachings, the presence of injurious acid compounds, and alkaline salts, the various methods employed for the improvement of soils, soil organisms and their influence upon fertility, the organic compounds of the soil and the part which they take in soil fertility, the increase and decrease of the organic matter and the nitrogen of the soil as influenced by different methods of farming, manures, and the causes of soil exhaustion and means employed the analyses of soils, and the application and interpretation of the results, uses of commercial fertilizers, and green and farm for conservation of fertility, adaptability of crops to soils and rotation of crops as effecting the fertility of the soil are some of the topics discussed. Soil judging, rating, and scaling form a part of the work.

(This course is given in alternate years; given in the last half of the second semester 1908.)

Course VI. (a) The analysis of foods.

[One semester.]

This work includes the determination of water, ash, starch, sugar, cellulose, pentosans, fats, proteids, and the different forms of nitrogen in food stuffs, the use of the calorimeter, and the polariscope in food analysis. Before completing the work, each student makes a complete proximate analysis of some food material. This course is planned to meet the wants of those who desire to become familiar with the methods employed in the analysis of foods and in nutrition investigations.

(b) *The analysis of dairy and animal products.*

[One-half semester.]

This course includes the analysis of fodders, milk, butter, cheese, and animal feces. A special feature of the course are the determinations of volatile fatty acids, iodine absorption number, specific gravity, and the saponification equivalent of fats. The object of this course is to meet the wants of those who desire to become familiar with the methods of investigations employed in research in dairy chemistry.

(c) *The technical analysis of wheat, flour and cereals.*

[One semester.]

A study of the roller process of flour production, the grading and testing of wheat for technical purposes, the testing of flour by chemical methods and the bread making value of flour as determined by comparative baking tests. Ample facilities are offered for this work as the laboratory is equipped with a complete miniature flour mill capable of producing the various grades of flour.

Course VII. The analysis of soils and fertilizers.

(a) *The chemical analysis of soils.*

[One semester.]

Laboratory practice in the chemical analysis of soils and the study of the chemical methods employed in soil investigations. Particular attention is given to the study of the organic compounds of soil, and an opportunity is offered for the study of experimental soil work applied to field investigations.

(b) *The physical analysis of soils.*

[One-half semester.]

Laboratory practice in the physical analysis of soils by means of Hilgard's eleutator, and the sedimentation methods as modified by the use of centrifugal apparatus.

Courses VII (a) and VII (b) are intended for students who desire to make a specialty of the subject of soils:

Course VIII. Special problems.

[One semester.]

Seminar and laboratory work in the study of special problems in Agricultural Chemistry, as the analysis of water for irrigation purposes, the adulteration of foods, dietetics, and problems in agricultural technology.

Course IX. Chemistry of forest by-products.

In this course a special study is made of the products of the forest other than for timber and fuel. The products studied include cellulose for the manufacture of paper, sugar, tanning materials, turpentine, tar, tar oils, resin, waxes, gums, creosote, wood alcohol, acetic acid, acetone, essential oils, charcoal, camphor, and medicinal products. The subjects of paint and methods for the preservation of wood are also taken up.

At the beginning of the course, a short time is devoted to a review of organic chemistry, special attention being given to those compounds found in wood or closely related to it. A thesis on some subject relating to the chemistry of forest by-products is required in this course.

ANIMAL HUSBANDRY.

Students who wish to specialize in Animal Husbandry are recommended to arrange their course in the junior and senior years as follows, and in addition elect the long course in zoology and the short course in botany.

JUNIOR YEAR.

Botany, short, [3]
Advanced meats and judging [3]
Thremmatology [3]
Elective (animal husbandry) [3]
Elective [3]
Elective [3]

Botany, short, [3]
Cattle feeding [3]
Animal breeding [3]
Elective (animal husbandry) [3]
Elective [3]
Elective [3]

SENIOR YEAR.

Animal feeding [3]
Farm structures [3]
Research animal husbandry [3]
Comparative physiology [3]
Academic elective [3]
Elective [3]

Veterinary elective [3]
Research animal husbandry [3]
Nutrition studies [3]
Academic elective [3]
Elective [3]
Elective [3]

JUNIOR AND SENIOR ELECTIVES.

Anatomy [3]
Dissection [3]
Stock judging [3]
Agricultural economics [3]
Foods [2]
Stock farm management [2]
Crop rotation [1]
Soiling crops [2]
Meat studies and judging [3]
Animal taxonomy [3]

Dairy management [2]
Animal diseases and treatment [2]
Animal mechanics [3]
Stock records and compilations [3]
Bibliography of Agricultural literature [3]
Animal parasites [2]
Seeds and seed judging [2]
Animal by-products [2]
Home dairying [2]
Academic [3]

Equipment. Representatives of some of the leading breeds of cattle, sheep and swine are kept at University farm. Each year a number of experiments are under way in the feeding of these classes of animals, and breeding experiments are also undertaken with sheep and swine, and

theoretical experiments with the smaller animals. Experiments in summer feeding cattle, sheep and swine wholly or in part on pasture are carried on each year. The new live stock building just completed affords excellent accommodations for class work in stock judging. Herds of blooded stock near the institution, and the annual show of live stock at the state fair serve for extended observation of breeds and methods of management.

Course I. Stock breeding. [One-half semester.]

Discussion of the principles of stock breeding as affecting breed maintenance and breed formation; standards of excellence and comparison of standards of breeds; heredity and the influences affecting it; prepotency, fecundity and their relation to successful breeding; the influence of nutrition on animal growth and form and the effect of artificial conditions, early maturity, selection and pedigree.

Course II. Feeding animals. [One-half semester.]

The principles of nutrition and digestion as applied to economical production; feeding rations and nutritive ratios, feed stuffs and methods of feeding, feeding of breeding stock and show stock, management of animals during pasture, yard and stall feeding for the block feeding for specific production of wool or flesh, selection of animals for the feed lot, stabling suitable for the various classes of live stock.

Course III. Stock judging. [One-half semester.]

This course is calculated to meet the needs of students desiring to become expert stock judges and of those who wish to study animal form with a view of becoming breeders of superior animals. Score card work in combination with the presence of living specimens is a feature of this course. Students are drilled in judging from the standpoints of breed, type, form, stamina, quality, breeding capacity, suitability for feeding and for general and specific production. Special opportunities are given for judging live animals fitted for the block and in judging the dressed carcasses after slaughter, thus determining by observation the quality of animals judged.

Live stock practicums: Feeding and stable management of cattle, horses, sheep and swine, recording and calculating amounts of pasturage obtained from different forage crops, keeping herd records, writing pedigrees and recording animals, calculating feeding records and cost of production, mechanical analysis of carcasses of animals to determine total amount of meat, and proportionate amounts of fat and lean, determinations of fat and lean meat with especially designed apparatus; calculating percentages of different parts of the carcasses.

Course IV. Stock farm management. [One semester.]

In this course, special attention is given to the crops and rotations that fit in with live stock farming, economy of feeds and pasture production, and solution of confronting problems is made the leading feature.

Course V. Animal nutrition studies. [One-half semester.]

Original work in solving some special live stock problems related to meat production followed by a thesis; sufficient work must have been done to make it reliable.

Course VI and VII. Animal husbandry research. [One semester.]

These two courses will consist of reviewing literature upon different phases of animal husbandry production. The experiment station records and other sources of information will largely be used. This together with original work will form the basis of extended compilation of valuable material on live stock husbandry.

Course VIII. Advanced meats and judging. [One semester.]

This course is designed especially for studying meat making animals and their products. Under general guidance each student makes up rings of animals which he studies in detail, at every step from the live state until the different parts are cooked and tested at the table. Full records and conclusions as well as illustrations are required in thesis form.

Course IX. Meat studies and judging. [One semester.]

Work along this line is a continuation of that begun in course VIII. More attention is given the more important details concerning meats and a minute study of its physical and chemical composition is required.

Course X. Stock records and compilation. [One-half semester.]

This will consist of a thorough study of systems of keeping and compiling stock records upon stock farms and at Experiment Station. Sufficient actual practice will be required to become familiar with live stock records.

Course XI. Animal by-products. [One-half semester.]

Individual study of the by-products manufactured at the large packing houses will be required of each student. The value and place that each has in economic use is considered.

Course XII. Animal mechanics. [One-half semester.]

A study of the mechanical effects of different relationships of bone and muscle in the animal body. This applies particularly to horses. The entire feet and legs as well as the body will be studied and made clear by apparatus and original illustrations.

DAIRY HUSBANDRY.

Equipment. Students in the college course have the advantages of the equipment of the dairy school. The feeding and breeding experiments in the dairy division of the experiment station serve a most useful purpose in the collegiate instruction. The cordial relations existing between the department of agriculture and the other state institutions are often advantageous to college students well advanced in dairy work.

Representatives of several breeds of cattle are kept for class use. Herds in the vicinity and those shown at the state fair are useful to students in this course.

Course I. Dairy stock and dairy farm management. [One semester.]

Lectures, first semester, three hours per week. Practice work one hour per week. This course is given during the first semester. The lectures cover the breeding, rearing and management of dairy stock, the points and characteristics essential in animals intended for the dairy practice work in judging dairy stock, and the management of the dairy herd.

Course II. Feeds and feeding. [One semester.]

This course consists of lectures covering scientific and practical questions underlying the principles of feeding. Practice work is given in formulating rations, in estimating the comparative value of food stuffs and in other problems connected with the subject.

Course III. Factory dairying. [One-half semester.]

This is offered during the session of the dairy school, beginning November 20. Lectures in the forenoon on dairy bacteriology, dairy chemistry, the care of milk and cream, lactic cultures, flavors, creamery milk, cream ripening and churning, working and packing butter. In the afternoon students are given two and a half

periods practice in the factory training rooms and in the dairy laboratory.

Dairy practicums: Students are offered training two semesters in compounding rations, feeding cows, rearing calves, milking and many other details in the management of the dairy herd; operating hand separators, and other modern farm dairy appliances, the manufacture of butter and cheese and work in the dairy laboratories.

ENTOMOLOGY.

Students who have completed the entomology offered in the school of agriculture, or its equivalent, may elect course I or course II.

College freshmen take Zoology and Entomology with the graduating class of the School of Agriculture. This course not only treats of injurious insects but also deals with the four footed pests of agriculture, such as rabbits, gophers, squirrels, etc., as well as injurious and beneficial birds.

Course I. General entomology. [One semester.]

Structure and classification of insects. The dissection of type, life history and habits of leading forms. Each student is required to make a collection of at least fifty insects.

Course II. Economic entomology. [One semester.]

in both of these courses. He must take course I at some time
Lecture upon injurious insects of Minnesota and best methods of combating same. The use of insecticides and spraying machinery. Beneficial insects.

Course III. Forest entomology. [One semester.]

The students in this course must have a thorough, practical training in elementary entomology and economic entomology in order to put into practical use in field work the principles to be learned during his course in forestry, which is to be followed by course II; the two, however, can be taken together if the student's time permits. The student will be directed in a special study of insects affecting the forest and will be encouraged in doing field work, in collecting, identifying, and in the life history of forest insects.

Open only to students in the forestry course.

Course IV. Comparative anatomy and histology of insects. [One semester.]

A detailed study of structure of representatives of different orders of insects.

Six periods of laboratory work and one lecture. Must be preceded by course I or its equivalent.

FARM STRUCTURES.

Lectures and practicums in designing and construction of farm barns, farm houses, silos, outbuildings and conveniences; cement floors, walls, troughs; painting farm buildings; farm water systems, wells, cisterns, tanks; house heating and plumbing systems.

VETERINARY MEDICINE AND SURGERY.

The new veterinary building gives ample facilities for laboratory and clinical work. The hospital furnishes a variety of cases for study and demonstration. The dissecting room affords material and opportunity for

studying the digestive organs and locomotor apparatus. A large and well stocked museum affords ample material for illustrations. department continues through two semesters.

Instruction is given by text-book, lectures, collateral reading and by practice work in the hospital. The lectures are illustrated by means of skeletons, manikins, charts and by the living animal. Anatomy of locomotion, conformation, the digestive organs, and the higher physiology of digestion are given prominence. All the diseases studied in Course IV are discussed with especial reference to causes and prevention.

Infectious diseases of domestic animals are studied with references to causes, recognition, prevention and methods of control. Certain medicines which the intelligent stockman should understand are studied with reference to uses, doses and methods of administration. The work in this offers many especially good lessons in nursery work, landscape gardening, fruit growing, vegetable gardening and greenhouse management.

Course I. Anatomy. [One-half semester. '06-'07.]

Comparative anatomy of the digestive organs, dissection, collateral reading and recitation.

Strangeway's Veterinary Anatomy is taken as text and guide and Chauveau is used for reference and comparison.

Course II. Body nutrition. [One-half semester.]

This is an advanced study of the veterinary physiology of digestion, taking up the digestive fluids, nervous mechanism of digestion, absorption and digestion of grains and fodders. It also includes a study of body nutrition, body income and expenditures, sources of heat supply and heat loss, and metabolism. Veterinary physiology, by F. Smith, is used as a text and guide for this work but students are required to do collateral reading.

Course III. Anatomy. [One-half semester '07-'08.]

This course deals with the anatomy and mechanics of locomotion and conformation. The bones, articulations and muscles involved in locomotion and conformation are studied by text book, dissection and collateral reading. Shoeing, diagnosis and treatment of common forms of lameness may be included in course III. Strangeway's Veterinary Anatomy is used as a text book and Chauveau for reference.

Course IV. Diseases of domestic animals. [One-half semester '07-'08.]

Lecture and text book work on the diagnosis and treatment of common diseases; common medicines in their doses, uses, dangers and methods of administration.

HORTICULTURE.

Equipment. In the college course in horticulture students are expected to avail themselves of the excellent facilities afforded by the nurseries, orchards, gardens and forest garden of University farm and the collections in the museums of the University. They will also find that the vicinity

Course I. Fruit growing. [One-half semester.]

Lectures. The study of the geography of fruit growing; outlook for fruit growing, planting, tilling and fertilizing of fruit lands; diseases and insects injurious to fruits, spraying, harvesting, and marketing varieties of vegetables.

- Course II. Systematic Pomology.* [One semester.]
Lectures. A general course in the study of cultivated fruits, their cultivation and classification.
- Course III. Plant breeding.* [One-half semester.]
Lectures and laboratory work. The fact and philosophy of variation; crossing of plants, origination of domestic varieties.
- Course IV. Nursery work.* [One-half semester.]
Lectures and laboratory work. Seedage, layerage, cuttage, graftage, planting, pruning, thinning, storage of nursery stock, tillage of nursery lands, insects, diseases injurious to the nurseries and their prevention.
- Course V. Floriculture.* [One-half semester.]
This course will include the work outlined in course III, but in addition instruction will be given in the growing of flowers in the open borders in summer, and practical work in this line will be required.
- Course VI. Green houses and their management.* [One-half semester.]
Lectures and laboratory work. Greenhouse construction and management, temperature, soil, watering, benches, propagation by seeds, cuttings, layers and graftage, prevention of diseases and extermination of insects injurious to vegetables, rest and growth periods of plants, plants for greenhouse cultivation.
- Course VII. Vegetable growing.* [One-half semester.]
Lectures. Geography of vegetable growing, tilling and fertilizing vegetable lands, irrigation and rotation of crops, seed growing and seed testing, vegetables under glass, pollination, diseases and insects injurious to vegetables and their prevention, harvesting and marketing varieties of vegetables.
- Course VIII. Landscape gardening.* [One semester.]
A general course in the principles and practice of landscape gardening, special attention being given to the planting of small grounds.

EDUCATIONAL OPPORTUNITIES FOR FORESTRY.

There are many and obvious reasons why instruction in forestry is especially adapted to fit in with the courses offered in a large University. It will be noted that this course offers to students not only studies which will fit them especially for forestry, but will fit them for general service. At present there is little forestry work undertaken by the state of Minnesota except that of fire protection, but the outlook seems to warrant the statement that the next few years will see much undertaken that will need the assistance and direction of properly trained foresters. Perhaps there is no situation where a forestry school has more natural advantages than here, as this state is still one of the largest lumber producing states, and the opportunities of seeing lumbering carried on in the best manner are most excellent. The establishment of the Chippewa Forest Reserve and its management by the Bureau of Forestry give opportunities which few other sections possess to study the best methods of forest management. The Minnesota Forest Reserve Board has recently acquired twenty-one thousand acres of timber land which it proposes to develop as a state forest and game preserve. In its development, it is expected that student help will be used as far as possible. Opportunities are here of-

ferred to see, and in many cases to take part in the scaling and estimating of timber, and to work in lumber camps for good pay at practical lumbering operations.

In addition to these general facilities and all of the opportunities offered by the University, students in the forestry course have all the privileges of the collections in the arboretum and forest garden of University farm. The state fish hatchery is nearby and furnishes students excellent opportunities to become acquainted with this important subject, on which a short course of lectures will be given.

General C. C. Andrews, the Chief Fire Warden of Minnesota, will give a course of lectures on the prevention and suppression of forest fires in which work he has been eminently successful.

PLAN OF INSTRUCTION.

The regular course in forestry is a four years' course intended to prepare men to take charge of independent forest properties, or for the government forestry service, or for positions of teachers.

The first year in this course, for those who enter other than from the Minnesota School of Agriculture, deals with the elementary agricultural subjects with which it is important for every manager of rural properties to be familiar. The forester from the very nature of his surroundings will be largely thrown on his own resources and should be capable of advising as to the best way of managing the farms or grazing lands that are almost always included in large forest properties. The sophomore year and one-half of each of the junior and senior years are devoted to the study of the basal natural sciences underlying the practice of forestry, and to such academic and engineering studies as seem especially desirable here. While French is made optional with German, it is expected that German will be taken in most cases, as it is the most helpful language for those who are to study forestry literature. An opportunity will be afforded to take Spanish, as it may be especially desirable to those who contemplate entering the Philippine forestry service. One-half of each of the senior and junior years are devoted to the study of technical forestry, an important part of which consists of field work and excursions. Every student is required before graduation to take four weeks' work in some approved lumber camp, so as to become familiar with common lumbering operations.

Especial emphasis is laid on the value of field work and excursions. This consists in excursions to nearby forests; to lumber camps, saw mills, wood manufacturing and paper mills; to the Boom Company's works on the Mississippi river; to nearby nurseries, and it is expected that arrangements will be made which will afford an opportunity for students to visit some of the forests of Montana, Idaho and Washington at a very low

rate. Excursions are also frequently made in connection with the study of botany, geology, zoology (and nursery practice).

OUTLINE OF COURSE IN FORESTRY.

FRESHMAN YEAR.

Students entering the forestry course will be required to take the freshman year the same as other students of the college of agriculture.

SOPHOMORE YEAR.

FIRST SEMESTER.

Botany, short, [3]
Rhetoric [1]
Zoology I [3]
Forest Entomology [3]
Scientific German [3]
Elements of Economics [3]
Agricultural Physics [1½]

SECOND SEMESTER.

Botany, short, [3]
Rhetoric [1]
Trigonometry [1½]
Zoology I [3]
Scientific German [3]
Essentials of Physical Geog. [3]
Agricultural Physics [1½]

JUNIOR YEAR.

FIRST SEMESTER.

Taxonomy [3]
Industrial Botany [3]
Forest By-products [2]
Surveying [3]
Drawing I [2]
Mycology [3]

SECOND SEMESTER.

Taxonomy [3]
Plant Ecology [3]
Wood Technology [3]
Mensuration [3]
Silvi culture [2]
Law, Elements of Contracts [1]

SENIOR YEAR.

FIRST SEMESTER.

Lumbering [3]
Utility [2]
Management [3]
Protection [2]
Economics [2]
Landscape Gardening [3]

SECOND SEMESTER.

Silviculture [3]
Utility [2]
Seminary [3]
Working Plans [3]
Forest Literature [2]

Practicums in forestry: Four practicums are required in the course in forestry, viz.: In forest exploitation, forest working plans, forest mensuration, nursery practice. A thesis must be presented in each of the four subjects, giving the results of personal observation.

Forest influence and utility: Influence of forests on precipitation, surface and sub-surface run-off and on springs, on frost, on winds and wind storms.

Forest mensuration and valuation: Methods of determining the volume of felled and standing trees, of whole forest growths; timber estimating. Determining the rate of increase in single trees and forest areas, determining present and future money value of forests.

Lumbering: The harvesting of forest products, logging—including transportation, milling and preparation of the wood for market.

Silviculture: (a) Silvicultural characteristics of trees, methods of regeneration, improvement cuttings, nursery practice. (b) Characteristics of the great typical forest areas of the world.

Forest economics. History of development of modern forestry, forest conditions here and abroad, relation of the state to forests, forest policies of foreign nations.

Forest administration. A working plan and rules of management for a specified forest area; state and national forest policy.

Wood technology and diseases of wood. Study of the characteristics of commercial woods and their uses. Impregnation of woods, fuel value of woods.

Chemistry of forest by-products. This course will be found outlined under the head of chemistry, course IX.

Forest entomology. (This course will be found outlined on page 47.

European forests. Lectures on the condition in European forests.

Forest protection. Protection of the forest against trespass, fire, insects and diseases; method of preventing washing of soils.

COURSE IN HOME ECONOMICS.

Purpose and scope. The courses in home economics offered in the college of agriculture are open to graduates from the school of agriculture who have taken the work of the intermediate year, and to graduates of approved high and normal schools. It is intended to bring to the vocation of home making the same kind of help which the course in agriculture brings to the business of farming. Aside from the universal need of education of this character there is a marked and increasing demand for trained women to fill institutional positions, not only as special teachers in the several divisions of home economics, but also in administrative positions as competent supervisors of supplies and of hygiene where large numbers are cared for in collective-house-keeping.

An especial effort is being made to train women to teach Domestic Science and Domestic Art in colleges, high schools, consolidated rural schools, and in other institutions where girls attend school.

A four year course is offered in home economics, leading to the degree of Bachelor of Science in Home Economics. In addition a short two years normal course (page 54) is offered in home economics, which includes all the special technical subjects given in the four years course, but does not include the required general cultural studies. Those who complete this course receive a certificate.

Graduates of other reputable colleges can here secure a Bachelor's degree by devoting two years to the subject of Home Economics. The major work must be done in Home Economics and one or both of two minors must be completed under the advice of the college committee, in one of the other divisions of the College of Agriculture, or in the College of Science, Literature and the Arts.

The special technical work in the course of Home Economics is given

in the Agricultural Department at St. Anthony Park. The descriptions of the general culture studies of the Home Economics course are given in the catalog of the College of Science, Literature and Arts. These courses include mathematics, languages, literature, botany, zoology, psychology, history of education, etc.

OUTLINE OF COURSE IN HOME ECONOMICS.

FRESHMAN YEAR.

Division "A" required for those who are graduates of the school of agriculture only. (Numbers after subjects indicate number of hours per week.)

FIRST SEMESTER.

Mathematics [3]
Geology [3]
German or French [5]
Rhetoric [3]
Drawing [3]
Physical Training [2]
Practicums [1½]

SECOND SEMESTER.

Mathematics [1½]
Chemistry [1½]
German or French [5]
Rhetoric [3]
Drawing [3]
Physical Training [2]
Practicums [1½]

FRESHMAN YEAR.

Division "B."

For graduates of approved high schools or others of equal standing. Students in this division take part of their work in classes of the school of agriculture. For descriptions of these courses, see statement under School of Agriculture.

SEPTEMBER.

Agriculture [3]
Dairy chemistry [3]
Fruit growing [3]
Home management [2]

Cooking [4]
Laundry work [2]
Sewing [4]

FIRST TERM.

Dairying [2½]
Agricultural chemistry [5]
Fruit growing [3]
Entomology [5]
Physics [5]
Forestry [3]

Physical culture [2]
Cooking [4]
Social culture [1]
Sewing [4]
Household art [1]

SECOND TERM.

Vegetable gardening [3]
Plant propagation [3]
Domestic chemistry [5]
Drawing [4]
Dairy husbandry [2]
Economics [3]

Cooking [4]
Home economy [1]
Sewing [4]
Meats [1]
Domestic hygiene [1]

LAST HALF OF SECOND SEMESTER.

Farm accounts [4]
Poultry [3]
Chemistry [4]

Cooking [4]
Sewing [4]
Live stock [2]

SOPHOMORE YEAR.

FIRST SEMESTER.

Chemistry [3]
German or French [3]
English Literature [3]
Botany, short, [3]
Zoology, short, [3]
Elective [3]

SECOND SEMESTER.

Chemistry [3]
German or French [3]
Elements of Psychology [3]
Botany, short, [3]
Zoology, short, [3]
Elective [3]

JUNIOR YEAR.

FIRST SEMESTER.

Domestic Economics I [3]
 Domestic Science III [3]
 Domestic Art I [3]
 History of Education [3]
 Bacteriology [1]
 Elective [3]

SECOND SEMESTER.

Domestic Science I [3]
 English Literature [3]
 Agr. Elective [3]
 History of Education [3]
 Foods [2] Course IV.
 Elective (Elements of Am. Gov.) [3]

SENIOR YEAR.

FIRST SEMESTER.

Physiology [3]
 Domestic economics II [3]
 " Science II [3]
 Educational Psychology [3]
 History of English Literature [3]
 Elective [3]

SECOND SEMESTER.

Domestic art II [3]
 Floriculture or other Hort. [3]
 Practice of Secondary Teaching [3]
 Elective [3]
 Elective [3]

NORMAL COURSE.

FIRST SEMESTER.

Domestic economics I [3]
 " Science III [3]
 Bacteriology [1]
 Domestic art I [3]
 Rhetoric [1]
 Physiology [3]
 Zoology [3]
 Practice teaching [3]
 Elements of Psychology [3]
 Physical training [3]

SECOND SEMESTER.

Domestic economics II [3]
 " science I [3]
 Domestic art III [3]
 Domestic art II [3]
 Rhetoric [1]
 Drawing [3]
 Zoology [3]
 Practice teaching [3]
 Child psychology [3]
 Physical training [3]

During the Junior or Senior years the student is required to elect Course III in chemistry.

When approved by the dean and college committee, other subjects given in the college of science, literature and the arts, or in the college of agriculture, may be substituted for the prescribed subjects in the course in home economics.

Women who are sufficiently advanced may study music or art during the junior or senior years, provided that no student may receive more than two semesters' credits in music and art together.

EQUIPMENT.

The class rooms and laboratories of the school of agriculture, also the equipment of the state experiment station, are available for purposes of instruction and research.

The courses in physical and biological sciences, in English language and literature and in philosophy and history, which are given in the college of literature, science and the arts, are open to students taking this course, as are also the college laboratories and the courses given in agriculture.

The class room devoted to instruction in sewing, garment drafting and the judging of textile fabrics is commodious, well lighted and fur-

nished with the usual accessories, including collection of vegetable and animal fibres showing the successive stages in manufacture from the raw material to the finished fabric. The school museum of birds of Minnesota is utilized in the study of color and its combinations.

The rooms for instruction in cooking, dining room service and laundering, contain the necessary appliances for manual practice and for demonstration lectures. Specimens of manufactured foods, samples of cooking, laundering utensils and materials, dining-room and kitchen furniture, are provided. The facilities of the city markets give practice in marketing. The proximity of Minneapolis and St. Paul, in which are found large flour mills, manufactories of cereal foods, canning and pickling factories, and other establishments which prepare food stuffs, make it possible for the classes to visit many places where facts of value are learned. The large public dining-rooms with their kitchens, and the commercial laundries also offer opportunities for gaining valuable practical knowledge in these branches of household science.

The library of the college of agriculture contains a carefully selected collection of books relating to the subject of home economics.

COURSES OF INSTRUCTION IN HOME ECONOMICS.

CHEMISTRY.

Two and one-half semesters of chemistry are required in the freshman and sophomore years. This work is taken along with the classes in the course in agriculture, and includes courses I and II, outlined on page 42. Should the student desire, special facilities are offered for advanced elective work in the Chemistry of Foods, course IV, and the analysis of foods, course VI. Nutrition investigations, including the digestibility of foods, the chemical changes which take place in cooking, and the losses in the preparation of foods form a part of the Experiment Station work; this offers an opportunity for students to study methods of investigation relating to human food problems. Laboratory practice is also offered to advanced students in the study of household problems in which chemistry is involved. Special classes are also formed for the study of dietary problems.

DOMESTIC ART.

A course of study is provided in those branches which are related to healthful and appropriate clothing for the body and to household decoration. The work is taken up in the junior and senior years. It is not confined to sewing or actual home adornment, but covers a number of branches of hand work connected with the home and adapted to the public schools and to industrial education. Needlework, raffia work, weav-

ing, basketry, cord work, crocheting and knitting are included. Each subject is considered in its simplest form for teaching very young children, and also in its possibilities of greater skill for more advanced grades.

Weekly lectures on related subjects are given. Historic costumes are studied in this manner, with lantern views of costumes worn during noted epochs. Their values are compared and designs selected showing possibilities of adaptation to modern dress.

Under the heading of Domestic Art is given the planning of the house and grounds. Architecture is studied in relation to the practical needs of the home and with due regard to grace and beauty therein. The course will also include the economical and tasteful arrangement of the interior of the house and its furnishings.

(Unless otherwise specified, all courses are three credit-hour courses.)

Course I. A study in textiles.

Animal and vegetable fibers, weaves and dyes, testing fabrics for household use and personal wear, the hygienic values of various fabrics and harmony of color. This course is designed especially to assist the teaching of sewing in graded schools, and includes the preparation, explanation and making of models suited to grade work in the public schools.

Course II. Design and garment drafting.

In the senior year the student is required to design and draft children's and adults' garments, and to write a thesis on some subject pertaining to domestic art.

Course III.

Includes lectures and practice work. It takes up the location and building of the home, its arrangement and furnishing, its decoration and all the details connected with its comfort and adornment. Pottery will be studied in its simpler forms, also color combinations and textiles.

DOMESTIC ECONOMICS.

The lectures are intended to give breadth, strength and thoroughness to the concept of home.

Course I. The evolution of the family.

Lectures twice a week during the first semester of the junior year. The evolution of the family from primitive conditions, the family as a social and economic institution, the relation of the home to civic life.

Course II. Home administration.

Lectures twice a week during the first semester of the senior year. The organization of a home, generic lines of expenditure; domestic service, disposal of waste, the home as a place and an opportunity for the right development of the physical and spiritual natures.

Theses. The theses required in the junior and senior years are upon some one special branch of domestic economics—distribution of income, home sanitation, hygienic furnishing, household fabrics, food, et cetera, and are intended to familiarize the student with the best sources of information upon the subject; a bibliography of the subject treated is required.

DOMESTIC SCIENCE.

This work is designed especially to prepare women for home-makers and teachers. It is a continuation of the instruction given in the Agri-

cultural High School, but is more elaborate and goes more into detail.

Normal students are required to study methods of teaching, and to direct some class work under an instructor. The object of such training is to have the graduates understand the principles underlying successful work in the school room, that they may be able to create for their pupils a wholesome atmosphere and foster self activity in the school room because of their own efficiency.

Course I. Food economics.

[One semester.]

Selection of food materials: (1) Marketing; buying by sample; cost and value; quality as to freshness, flavor, etc. (2) Storage and care of foods, care of cupboards, cellars, refrigerators. (3) Selection, preparation and serving of foods for large numbers; equipment of large kitchen, serving rooms and dining rooms. (4) Kitchen practicums, arrangements, equipment and methods of directing practice work in cooking.

Preparation of foods: (1) Meat products, as beef tea, beef powder and beef extracts; (2) Cereal products and materials made from flours and meals, methods of aerating dough, leavening agents, etc. (3) Manufactured beverages, as cocoa and koumiss, matzoon, etc. (4) Condiments and spices; (5) Confections, as candies and sweetmeats; (6) Sweets, as sugars and syrups; (7) Commercial bakery products, as breads, biscuits, crackers, wafers, etc. (8) Preserving by drying, canning, refrigerating; and with preservatives, salts, sugars, spirits, fats and acids.

A thesis with bibliography on some special topic of household science is required.

Course II. Management of kitchen and dining room.

[One semester.]

1. The kitchen:
 - a. Kitchen equipment.
 - b. Kitchen sanitation.
 - c. Labor saving devices.
 - d. Disposition and utilization of kitchen wastes.
2. The dining room:
 - a. Equipment, furniture, decorations, china, silver, glass-ware and linens.
 - b. Management; setting the table; garnishing and table decorations.
 - c. Table service; reception refreshments; formal dinners, etc.
3. Household inventories.
4. Bills of fare and selection of food for the dietary, in rural homes, in urban homes, in public institutions, in boarding houses, in restaurants and hotels.
5. Fancy Cookery; meat dishes, vegetable dishes, fruit dishes, pastries, ices, candies, sweetmeats, chafing dish cookery.

Course III. Laundering.

[One-half semester.]

Removing stains; dyeing; setting colors; cleaning delicate fabrics, as silks, laces and fine wools; the use of cleaning agents; as soaps, volatile oils, and other chemicals; starches and bluing. Commercial laundering and cleaning; power washing and ironing machinery; drying apparatus, etc.

Students

SENIORS

Cox, William Thomas, Washington,
D. C.
Detwiler, Samuel B., Colorado
Springs, Colo.
Gaumnitz, Amos John, Berkeley,
Calif.
Leager, Marc Carl, Aberdeen, S. D.
Muir, Harry Scott, Winnebago City

Peck, William Argylus, Washington,
D. C.
Peterson, William Arnold, Olivia
Rockwell, Frank I., Brooklyn Center
Southworth, Pierre Duane, Mondovi,
Wis.
Thompson, A. Adel, Cottage Grove
Tierney, Dillon P., Farmington
Torrance, James B., Minneapolis

JUNIORS

Blair, Donald Scripture, St. Anthony
Park
Canavarrro, George de S., Honolulu

Rose, John de Cew, St. Anthony
Park
Tomhave, William H., Fergus Falls

SOPHOMORES

Ainslee, George, Rochester
Cady, LeRoy, St. Anthony Park
Frear, Dana Walter, St. Anthony
Park
Gaumnitz, Carl, St. Cloud
Knorr, Frederick, Fort Collins, Colo.
Mayland, Edwin, Rushford

Moore, Walter M., Merriam Park
Orr, Raymond.
Pfaender, Maximillian, New Ulm
Potter, Alden A., Minneapolis
Robinson, Mabel, Minneapolis
Skoglund, Walter L., Red Wing
White, Hall B., Winnebago

FRESHMEN

Ainsworth, W. L., Minneapolis
Bingham, Charles L., St. Paul
Bergstrom, C. H.
Blackburn, James R., Royal, Neb.
Carrol, Harry B., St. Paul
Cooper, Thos. P., Minneapolis
Foster, Jeanette Ora, St. Anthony
Park
*Harris, Dwight, K., Winona
McNelly, Chester L., Caledonia
*Died Mar. 25, 1906.

Miller, Ralph C., Minneapolis, Sta.
F. R. 1.
Paterson, Thomas, St. Cloud
Peterson, Eric, Dawson
Peterson, Elvin, L., Olivia
Strunk, Blanche, Faribault
Titrud, Ole L., Cokato
Underwood, Clarence, Minneapolis
West, Ralph L., Minneapolis
White, William, Camden, N. J.

SPECIALS

Gayman, Leah M., Minneapolis
Mapother, P. G., Louisville, Ky.
Newell, P. F., Minneapolis



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